The Builder.

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ILLUSTRATIONS.

New General Hospital, Birmingham.—Mr. W. Henman, A.R.I.B.A., Architect ..... *Extra Large Photo-Litho.*
Plans of New General Hospital, Birmingham.—Mr. W. Henman, Architect ..... *Two Single-Page Photo-Litho's.*
Elevation of Staircase in North Transept of Burgos Cathedral.—Drawn by Mr. A. N. Prentice, A.R.I.B.A. ..... *Double-Page Photo-Litho.*
Façade of Convent of St. Marcas, Leon, Spain.—Drawn by Mr. A. N. Prentice ..... *Double-Page Ink-Photo.*

Blocks in Text.

Old Doorway, Carey-street, Lincoln's Inn ..... pp. 378, 379
Diagram Illustrating Article on "Geology" (Student's Column) ..... p. 378

CONTENTS.

The Plateresque Architecture of Spain 369
The Debate on the Employers Liability Bill 370
Notes 371
The Architectural Association 373
Competitions 376
Birmingham General Hospital 376
Staircase, Burgos Cathedral 376
Convent of San Marcos, Leon, Spain 376
London County Council 377
The Junior Engineering Society 377
Architectural Societies 377
Engineering Societies 377
Old Doorway, Carey-street 378
Mangotsfield Sewerage Works 378
Re "What is a Public Sewer?" 378
Student's Column: Geology.—XXI 378
Surveyorships 379
General Building News 380
Sanitary and Engineering News 381
Stained Glass and Decoration 381
Foreign and Colonial 381
Miscellaneous 381
Meetings 382
Recent Patents 382
Some Recent Sales of Property 383
Prices Current of Materials 383
Tenders 383

The Plateresque Architecture of Spain.

IT is not so long since the early Renaissance architecture of Spain was regarded by architects and art-critics (so far as it was regarded at all) as a chapter of eccentricities, not worth serious attention in comparison with the more sober, restrained, and classic forms of Italian and French Renaissance architecture. The very name given to it by the Spaniards themselves, the "Plateresco" or "silversmith's" style, seemed to convey an imputation against it as a type of architecture wanting in breadth and dignity, and with details more suitable to furniture or metal-work than to building. In the late David Roberts's book of rather superficial and mannered architectural sketches in Spain, accordingly, we find only two examples of the Early Renaissance style of the country illustrated throughout the volume, the bridge at Toledo and the tombs of Ferdinand and Isabella at Granada. Roberts painted a picture, one of his most ambitious efforts, of the Burgos Cathedral staircase, though (as remarked elsewhere) he succeeded here in creating a pictorial effect rather than an architectural representation, and for the sake of effect exaggerated some of the details which did not in themselves require any exaggeration. But generally speaking Roberts devoted himself more to the Moorish types among Spanish monuments. The full Renaissance style which succeeded the Plateresque—the style of which Herrera was the great name—is the coldest and the least interesting of all the types of formal revival of Roman architecture in the fully developed Renaissance period, and has not interested either architects or artists very much, while the extravagances of the succeeding phase of debased Renaissance (if it may be called so), known as the Churrigueresque, are perhaps, if not so dull, still less attractive to a well-regulated architectural perception. Consequently it has come to pass that Spanish Renaissance has been greatly neglected by architectural students and illustrators, the early and late styles because in the eyes of the purist they are licentious and illegal developments, the middle or pure Renaissance period because it has not the grace and refinement of Italian work. The chief efforts of architectural illustrators in Spain have been directed to the Moorish work there, about the interest and beauty of which there has been always a common consent, and the magic of the Alhambra has thrown everything else into a secondary position; and, as Fergusson complains, among the hundreds of artists who go into ecstasies and write books about the Alhambra, not one has ever concescended to look at the remarkable early Renaissance Cathedral of Granada close to it. Thirty years ago Street saw the interest of studying and illustrating the special features presented by Gothic architecture in Spain, though his single volume, with its carefully-executed but small woodcut illustrations, leaves plenty of scope for other illustrators in the same field.

Nevertheless, Street took the lead in illustrating and calling attention to the Spanish phase of Gothic architecture, and the Moorish architecture of Spain has been amply illustrated, though not more so than it deserved. On the whole, therefore, there could hardly have been a better choice for any young architect wishing to distinguish himself in the production of a new and important illustrative work than the Spanish Plateresque style of the early half of the sixteenth century, which presents so much for the draughtsman, and which has certainly not been adequately illustrated in any publication that we know of. The Plateresque may be considered to be to Spain what the Francis I. style is to France: nearly contemporaneous, each represents what could be made out of classic forms of architecture when first taken up in a country from which the Mediæval tradition or feeling had scarcely died out. In each case we find an architecture in which the leading forms of classic style are treated with a picturesque freedom characteristic of Mediæval art, and accompanied by details which are more or less distinctly of Mediæval type. But the French form is far more severe and restrained than the Spanish, and is purer and more dignified in expression. It recalls Mediæval architecture chiefly in its varied and multitudinous skyline, in the forest of turrets and chimneys which rise above the roofs of such an edifice as Chambord, of which the nearest analogous type in English architecture is to be found in Burleigh House, or in some of the Scottish castles. The high-pointed roofs, too, of the French château retain the Gothic feeling for verticality of expression. In the Spanish Plateresque style we do not find this tendency to high roofs, but on the other hand we find a richness and exuberance of decorative detail which is more than Mediæval; it is the Mediæval spirit inspired by reminiscences of Oriental art. This is what makes the special interest of the Plateresque achitecture. Here, and here alone, we see how it is possible to combine general forms based on classic architecture with something of the rich effect of Oriental detail. The Renaissance is there, but the influence of Moorish art is on it, and this is what gives the special and unique interest to the style of architecture illustrated in Mr. Prentice's fine volume of drawings. It was probably the monuments of this school of Spanish architecture more than any other which prompted the remark of Sir Digby Wyatt, in "An Architect's Note-Book in Spain," that the most prominent impression produced upon him by his first contemplation of Spanish architecture on its own soil was that of its entire indifference to expense. It was a pity that, perceiving this as he did, he should have been content to accompany his literary notes thereupon by such absurdly inadequate sketches.

Mr. Prentice has taken the opposite course. Content with very brief literary and historical notes, he has given his main attention to the production of a set of admirable and elaborate drawings, and has thus for the first time brought home to those who have not visited Spain for themselves something like an adequate idea of the richness and interest of her Early Renaissance Architecture.

A great deal of the characteristic effect of this fascinating school of architecture consists in the massing of ornament and detail at certain points, contrasted with large expanses of plain wall space; in itself a distinctly Oriental characteristic. In the very first plate, the view of the library of Santiago Cathedral, we notice the striking effect of this contrast. The ground story consists of a very plain arcade; the middle story of pedimented and grated windows inserted at intervals (not quite regular) in a surface of plain wall; the upper story of a long row of arcaded windows with deep reveals, divided by pilasters which (accord-

ing to the drawing) are panelled not in the shallow manner of Italian Renaissance, but with deeply-recessed panels giving a dark point of shadow at the top. Over the cornice is the most Oriental characteristic of all, a parapet, or rather an upright fringe, of rich and elaborate pierced ornament, with upright colonnettes rising above the general line of the design. The Hospital des los Reyes at Santiago (plate 2) is still more Oriental in character. The main design consists of windows inserted in blank walls, with some ornamental framing around them which is partially Renaissance in form; the whole richness of the design being concentrated around and above the central doorway, where a kind of reredos seems planted against the wall, made up of a profusion of sculptured pilasters, niches and sculpture, and in the abnormally deep and highly enriched cornice which crowns the whole building. This cornice, according to classical canons, is quite out of proportion to the height of the wall which it crowns, yet it seems in keeping with the whole. The façade of the palace at Cogolludo on the same page is even more striking in its contrast of enrichment with plain walling; a whole mass of severely rusticated wall is broken on the ground story only by the one enriched doorway in the centre, and on the upper story by six windows inserted in the wall at equal distances; a similar immense cornice over the whole. There is something in the general appearance of this which rather reminds one of the Riccardi palace, though with a difference.

The special treatment of details which are more distinctly classical in character is illustrated in the interesting and elegant colonnade of the courtyard of the Casa Miranda at Burgos (plate 11), which the author calls a typical specimen of a Spanish nobleman's town house, though now in a very dilapidated condition. Here we have a double-storied colonnade, the lower colonnade supporting a gallery on which is the smaller-scale upper colonnade with a low screen wall between the columns. The columns in both stories are treated with the shaft plain below and fluted above, with a projecting moulding below the fluting; the interesting detail is the capital, which is a very well-designed and classic-looking bracket capital, combined with a portion of the usual hollow-lined abacus in the centre. This latter seems a rather unnecessary adjunct to a bracket capital, though the two details are very cleverly fitted together; the whole design is at once bold and graceful. In the elevation of the *patio* (the central courtyard) of another mansion, the Casa Polentina at Avila (plate 19), we have the same arrangement of the double-story colonnade, in this case with plain columns of a rather crude Roman-Doric type, their bases set on low square pedestals, and the capital carrying square blocks from the side of which spring the brackets.

The Montery Palace at Salamanca is another striking example of the effect of grouping and concentration, the main portion of the walls being as bare as those of a prison, and with irregularly spaced totally plain window openings; the upper story contrasts this with a symmetrical row of circular-headed windows with pilasters between, and a rich balustrade over. This concentration of ornament in one part is indeed a leading feature of the style. It gives very marked character and picturesqueness, but a sober judgment must conclude that it is not the most reasonable or truthful method of treating the exterior architecture of an important building, unless there is some very decided reason, in the use or construction of the building, for thus emphasising a particular story. In the case of the Montery Palace the upper arcade forms an open loggia, and Mr. Prentice suggests that the use of this was for the ladies of the palace to take the air in at times when the streets were not safe for them, which probably happened often enough. But this does not explain the similar treatment in the cathedral library façade of Santiago, already referred to, where the upper story arcade consists of windows; unless indeed the openings have been glazed in later times.

The façade of the Alcazar at Toledo is in a much more classic style, the windows regularly spaced and framed between pilasters and a cornice, in much more Italian fashion than in many of the other buildings illustrated; though here we have the curious anomaly that the upper story (there are three in all), more lightly treated in most of its details than the lower ones, has the surface of its wall worked in a heavily-jointed rustication, while the two lower stories are are of plain masonry. The effect, as may be supposed, is anything but good, and looks like a perverse inversion of the natural order of things, which should lead the architect to give the greater appearance of strength and emphasis to the lower portion of the wall surface, if to any.

The architectural designs of the various *patios*, two of which we have referred to, are among the most interesting and finest pieces of work illustrated. The bracket capital meets us again in very varied forms, and the treatment of the colonnades and of the gallery balustrades is in all the examples of great beauty, and these designs deserve special study, the more so as they are mostly in a more restrained and classic style than the exterior of the buildings, and may afford suggestions for novelty of treatment in detail of this kind, such as may be worked upon without giving to a design too much the appearance of Spanish work transported to English soil. In the *patio* of the Casa de la Infanta at Zaragoza we have, however, an arcade in that more richly ornamented but somewhat corrupt style of treatment which especially seems to suggest the title of "Plateresque," or at least looks either like silver work magnified or like terra-cotta work. The similarity of this work to the silversmith's work of the period is indeed strikingly illustrated by the sketch of the beautiful "Custodia" from the monastery of Silos, prefixed to the index of plates, perhaps as a kind of practical illustration of the special title given to the style of architecture illustrated.

In a great deal of the ornament illustrated in this book we see the exuberance of Spanish artistic taste (acted on as it had been by Moorish influence) exemplified in the extravagant fancy and superabundance of detail into which it runs. The kind of grotesque fancies peculiar to Renaissance ornament seem here to run riot. Another peculiarity is the tendency to the use of very large scroll ornament. The most striking example of this is at the foot of the Burgos staircase (see lithograph), where the scroll, seen endways in outline, looks bold enough, but when we come round to the side we find it is nearly 10 ft. long. This is one of the features which most strikes the eye in the design of this staircase, and though it is a disproportionate and semi-barbaric detail, one cannot deny that there is a stroke of decorative genius in it.

We are glad to see that Mr. Prentice has given several examples of the splendid iron screens of Spain, which have a special character of design not to be met with elsewhere; the combination of simple vertical railing, slightly relieved by ornament and shapeliness of outline, with exceedingly rich and florid foliated ornament in the upper portion. This is the same contrast of plainness with richness which we notice in the architecture. The portion of the screens which acts mainly as a barrier is treated with practical severity; the rich decoration is introduced as a crown to the work. The details of the standards of the railing at Cuenca Cathedral (Plate 34), which are given to a large scale, are very refined, and worth the attention of artists in wrought iron.

We congratulate the author on the successful production of a work which has cost much time and labour, and which is an important addition to architectural illustration.

THE DEBATE ON THE EMPLOYERS' LIABILITY BILL.

As most of our readers have already seen, the Government defeated Mr. Walter Maclaren's new clause by a majority of nineteen, and by this number therefore the doctrine that a workman may not contract himself out of the Act has been affirmed. Mr. Maclaren's clause only applied to existing mutual insurance societies to which employers subscribed, and as such it was undoubtedly open to the criticism of the Home Secretary that its author had not the courage of his opinions, otherwise he would have made it applicable to future agreements between employers and employed as much as to those that are already in existence. We regret that Mr. Maclaren did not do so, because we have no hesitation in repeating what we have already on previous occasions said, that under proper safeguards it is better for all concerned that employers and employed should make an amicable and standing agreement by which workmen may be compensated in cases of accident or illness at a specified and known rate, and without recourse to litigation. It is said, as one argument against such mutual arrangement, that the workman, if he is injured, may obtain under the Act a larger sum than he will get from the society to which he and his employer alike contribute. That may be so, but if he gets less he gets it without expense and without delay; he gets it whether he has a good or a bad case; whether he has by his negligence contributed to the accident, or whether he has not. It is obvious, therefore, that even if he gets something less if he is injured without negligence than after a recourse to law, he has substantial advantages to balance such diminution. The employer who gives 20 per cent. discount to his customers if he receives cash for his goods obtains less in actual money than if he waited to be paid, but he obtains a substantial advantage by so doing. The same theory applies to the workman who gives up an uncertain for a certain advantage. In truth, the more the case against the liberty to contract out of the Act is examined, the weaker does it appear. It was said that workmen were not free agents in regard to contracting out of the Act, and that they were, in some way or other, forced to do so as a part of the term of their contract. But they are no more forced or compelled to contract out than they are forced to take a particular rate of wages. And if the workman is not strong enough to take care of himself in regard to contracting out, it is obvious that he is not strong enough to protect himself in regard to the sum he should be paid for his labour. But no one for a moment doubts that he is well able to take care of himself in this respect. Again, even assuming that what may be called pressure is placed on the workman to contract out of the Act—in other words, that he will not be employed, or will not be employed at the same rate of wages, if he does not contract out—and that, if he were an absolutely free agent, he would prefer to take his chance in case of an accident, what is this but pressure which he suffers in other forms from fellow workmen? In the case of joining a union a workman is under constant pressure; if a strike is carried by a majority, a minority dare not resist. If the workman is to be protected by the Legislature in regard to his transactions with his employer, should he not also be protected in transactions with his fellow workmen? In truth, the opposition by the Government and most of its supporters to Mr. Maclaren's clause was based not on a genuine belief in the virtue of the Bill as it stood, but because the Trades Unions had made up their minds that the contracting-out clause would weaken their hold on large bodies of workmen, and would lessen their power to produce strikes. The Trades Unions influence a larger body of votes than the free workmen, and hence a larger body of members voted against

Mr. Maclaren's clause than were found to vote for it.

One specious argument deserves some notice: it is said that the primary object of the Act is to prevent accidents, not to compensate the workman, and that this object will be defeated if the workman is allowed to contract himself out of the Act. For, it is argued, he will be less careful when he belongs to a mutual society, knowing that, negligent or not, he will obtain compensation from the society: on the other hand, the employer, having always to pay the same annual sum, will also be less careful in regard to machinery and management than if he were liable to pay damages whenever a workman is injured. But it is childish to suppose that when a workman is engaged on his work he will think whether or not he is going to get compensation from his society; he will be just as careless whether he is to be compensated by his employer or by his society. So far as the employer is concerned it is obvious that when his risks are greater his charges to the general public must and will be greater. If a builder may have to compensate his workmen to an unknown extent over a job, he will add to his charges a sum which, taking one job with another, will repay him for his extra risks. If, on the other hand, his workmen and he contributed to a mutual insurance society, he can work out to a nicety the amount which he requires to obtain from the person by whom he is in his turn employed.

Mr. Burns quoted various statistics to prove that contracting out increases accidents, but they were altogether untrustworthy. To say that because there is full liberty to belong to mutual insurance societies in Germany, and because the number of accidents is greater than in England, that therefore the insurance system produces greater carelessness on the part of employer and employed, is simply using certain statistics to serve a purpose without regard to other causes which may be at work. The state of the law in regard to the inspection of manufactories, and many other causes, may be and are at work to produce accidents. In truth, statistics without proper investigation and comparison are the most deceptive of things, and may be employed to bolster up the worst of causes. Again, also, what might possibly be true in the case of individuals is not true in the case of great corporations and great commercial firms (to whom the amendment applied), whose working is watched by a competent and keen body of men, quite alive to risks which they undertake. We repeat that the main motive of the hostility of the trades union leaders to Mr. Maclaren's clause has been their dislike to a system which places employer and employed on a footing of common interest. They wish to increase the power of the unions, and the numbers of the members of the trade societies. They forget that the closer capital and labour are connected, and the more amicable are their relations, the easier is the battle of competition, and the more peaceful and contented are the workmen.

But the matter is not yet settled; it is regarded as certain in well-informed circles that Mr. Maclaren's clause will be inserted by the House of Lords, and there will then arise a fresh discussion in the House of Commons, namely, whether the Lords' amendment shall or shall not be agreed to. Two courses will be open to the Government, either to agree to let the Bill so amended pass into law, or to drop it altogether. The latter would be a very dog-in-the-manger policy and unworthy of true statesmen, since the other benefits to the working classes, such as the abolition of the doctrine of common employment, which are in the Bill, would thereby be lost. But we should not be surprised if this course were adopted for purely party purposes, and in order to get up a cry against the House of Lords and against the opposition among the trades unions. But a few weeks will set the question at rest.

Meanwhile the House of Commons has inserted during the debates of the present week two new clauses of exceptional interest. The first of these gives the workman a right of action against the principal contractor when the latter has sub-let part of the work to a sub-contractor, although as a set-off the principal contractor is to have a right of indemnity against the sub-contractor. As the whole doctrine of the liability of the employer to compensate a workman for injuries received by him is wholly artificial, there can be little objection to the extension of the doctrine so as to give the workman one central figure to sue. But probably also the terms of business will, after the passing of the Act, be so arranged between contractor and sub-contractor that the latter will have to agree to indemnify the principal contractor should the latter be sued. The sub-contractor will then protect himself either by insuring against these risks or by habitually charging a rate which shall in effect make him his own insurer. The ultimate loss will—as it nearly always does—fall on the person who is to pay for the work done; in common parlance, on the general public or the consumer. The other new clause to which attention should be directed is one making an employer liable to his workmen if the latter are either disabled or killed by the neglect of reasonable precaution, in regard to all employments in which the risk of injury to health can be mitigated by such precautions. Obviously there is a good deal of sense in this clause, as it is easy to conceive employments which are healthy in a proper state of ventilation, and unhealthy under other circumstances. The clause will apply to such cases, but if a claim is disputed in such a case it is equally clear that there may arise very troublesome and expensive litigation. Such cases are also met by the provisions of the Factory Acts; so that, in a word, this new section appears to add to the possibility of a penalty under the Factory Acts, the further possibility of an action at law and subsequent damages.

NOTES.

THE Government have at length intervened in the coal dispute, and at their next conference, which is arranged for to-day (Friday), the belligerents will have the advantage not only of an independent and impartial, but a thoroughly capable chairman, and one not at all new to the work of presiding over the deliberations of important assemblies. Lord Rosebery may be trusted to fulfil his delicate mission with tact, and it is universally hoped that the forthcoming conference may prove more successful than the last. There certainly seems to be a more hopeful feeling all round. It would almost appear as if both sides, reviewing former proceedings, have now recognised a genuine desire for peace, underlying the apparently uncompromising rejection of the various proposals then made, and that they are now prepared to look more favourably upon any practical suggestion for resuming work. Every week there are more pits at work, and all at the old rate of wages. The situation has entirely changed since the commencement of the struggle, and although the large contractors have doubtless been hit, the restricted output means a pretty large profit for the trade generally, in which the men have clearly a right to share, seeing that the gain has been principally at their cost and that of the public. It is noticeable that those miners who have already gone in to work are ready enough now to subscribe to the doctrine they so recently repudiated—that wages should follow prices—and are demanding increased wages on the ground of advanced prices.

THE City fire of Wednesday night, which originated in a block belonging to the Crown Perfumery Company (Old Bailey), was remarkable for the rapidity with which the buildings collapsed, the company's premises, for instance, of the several buildings destroyed being practically razed within an hour of the outbreak. The spread of fire from house to house in this case was apparently generally by way of the roofs, from which the fire literally worked *downwards* into the basements, showing us practically the advantages of certain Continental building regulations, which require the division between the top floor of a house and the roof to be of fire-resisting material. As to the way in which the fire was attacked, we can only compare it with the absurdity of a regiment of cavalry to-day charging against a square of well-equipped infantry. The usual tactics were adopted of trying to pour masses of water on to the site of the original outbreak, whilst but little protection was afforded to neighbouring property, much of which was eventually gutted. In several cases, as, for instance, in the direction of a stream into the centre of the blaze from the roof of Newgate Prison, a senseless waste of water and labour was evident, the latter being, however, yet more remarkable in the laying-out of an unnecessary number of lines of hose. Mr. Simonds' water-tower was used with much effect. An American water-tower, such as was exhibited by Mr. Hale last summer, would have been practically useless in Old Bailey.

THE lecture season at the London Institution was opened on Monday afternoon last by a lecture, delivered to an unusually crowded audience, by Sir Robert Ball, on "Recent Researches on the Sun," the main subject being the question what it was which gave the light and heat from the sun. Going through some of the earlier drawings of the sun's surface (shown by lantern), followed by photographs made more recently, Sir Robert pointed out to the audience the ocular evidence (familiar enough now), from the photographs of the spots, that it was an outer envelope which gave the light, and that the spaces seen through this envelope were, comparatively at least, dark. The lecturer credited Dr. Stoney with the original suggestion that the incandescent substance which was driven up to the outer surface of the envelope, and which must be "something very infusible," was carbon, not in a gaseous state, but reduced to exceedingly small glowing particles. Proceeding to show how this theory corresponded with and explained the observed facts (or one might rather say the calculated facts, for astronomic research is now in the region of the infinitely little), he closed by explaining how the temperature of the sun might be, probably was, constantly maintained by the acceleration of the motion of these particles by the sun's attraction; carefully drawing the distinction between "temperature" and "heat"; the sun was losing its heat, as a store, but keeping up for the present its normal temperature. Sir Robert Ball has therefore no hope to offer us of the eternal permanence of the sun, if that seems of consequence to us. There was a kind of imaginary satisfaction to the mind in the theory of the sun's stability offered to us by Siemens, which is now snatched away from us; the end may be indefinitely far off, but it seems that (as we are at present advised) it must come. Sir Robert does not undertake to fix the period. The lecture was a model one as a popular demonstration. We could not help observing, by the way, that there was a vast difference between the texture and character of the sun's surface as represented in drawings from telescopic observation, and the appearance it presented by direct photography. The drawings and photographs of the *faculæ* were supposed to represent the same thing; the actual difference in the result was instructive.

WE are always interested in what Mr Pite has to say about architecture, even when we cannot agree with him, because he thinks for himself, and regards

architecture as something more than a means of earning a living. But in his cry for originality in designing, at the Architectural Association last week, he has rather overshot the possibilities of man. He is like the metaphysical lecturer who was supposed to have "got The Absolute into a corner." We cannot corner The Absolute, in architecture more than in any other line of human study; our very perceptions are made up of the results of the perceptions of our predecessors. Let any one try to design a bit of ornament which shall be absolutely original—not traceable to anything else in art or nature for its idea; he will find it impossible. The question whether the great styles of the world should be regarded as a kind of grammar to be learned, a language to speak in, as some seem to regard them, is a different one; much may be said on both sides — perhaps more on the grammatical side (as a means of training the eye at all events) than Mr. Pite would at all admit. And when we are exhorted to follow the example of the Greeks, who used a style of their own and not an archæological one, it may be replied that the Periclean Greeks did not invent the style of the Parthenon; the style was several centuries old, in its essentials: they only refined and perfected it in detail.

ZURICH has a new "Building Act," the purport of which has been subject to much controversy, the number of voters in favour of it being 26,366 against the 20,497 of the opposition. In the new Act the question of city extension and the laying-out of roads, &c., is treated in a most radical manner, the Municipal Authorities being vested with powers to enforce the general combination of estates, and a proportional redivision after the deduction of the road area considered necessary. They have even powers to enforce an interchange of the ground of adjoining owners if their boundary lines are not at right-angles to the frontage-line of a road, and a special paragraph goes so far as to prohibit a mortgagor from withdrawing money lent to freeholders on account of the extent of frontage, boundaries, &c., having been altered by the authorities. According to the new regulations the Municipality is to build all new roads at its own expense, and the adjoining owners only have to pay half of the cost of the footpaths, and six francs per mètre of frontage for the use of the sewer. The sanitary regulations are by no means up to date, though the authorities go so far as to reserve to themselves the right of regularly cleaning all drains on private property at the owner's expense. Protective measures against fire and panic are somewhat vaguely referred to, and where data are given, such as the projection of party walls over roofs (30 cm.), the requirements seem too moderate. It may be noted that all doors to churches must open outwards, as in theatres, and that no room in a hotel may be more than 60 ft. distant from a staircase. There are no restrictions as to the architectural treatment of façades, excepting that chimney-breasts and chimnies are banished from all "fronts." A plain brick return or party wall is however strictly prohibited. Such walls must have a plaster surface of "pleasing" colour. We should like to hear a Swiss judge's definition of the word "pleasing" as used in the Act.

MUNICH is apparently at last to have the Wagner Opera House for which the unfortunate King Ludwig II. twenty-five years ago instructed Gottfried Semper to prepare plans. Though Munich already has a large Royal Opera House, its auditorium cannot hold the crowds of tourists who annually pass through the city and wish to hear the Wagnerian operas. An influential committee has taken the matter in hand and is having drawings prepared for a site at the end of the new Prince Regent-street. Semper's beautiful pen and ink drawings which illustrated the design he prepared in 1866 for the King of Bavaria were exhibited at the Vienna Theatrical and Musical Exhibition last summer, together with a model showing the proposed building on a commanding site approached by a series of terraces. The plans showed a masterly combination of two distinct ideas which, on the one side, took form in the new Dresden Opera House he built from 1871-1878, and, on the other, were afterwards developed by Herr Brueckwald in the Bayreuth Play House, and generally credited to this artist instead of to Semper. We spoke of Semper's design for the Munich Opera House at some length in an article describing the architectural contributions to the Vienna Exhibition, where the drawings were for the first time publicly exhibited.

THE activity of the Prussian Board of Works has by no means decreased in 1892, though the amount of money expended may not have been as high as usual. The Report recently published shows that the officials had charge of over six hundred buildings or alterations during the year, about 380 of which were new works. The number of churches in course of erection was fifty-three, of which three cost over 10,000*l.* each. There were forty-three vicarages in the hands of the department, and 152 schools. Eleven new administrative structures, including the new Board of Works offices at Berlin (which cost about 25,000*l.*), were in progress, twenty-two courts of law, and six new prisons, two of which cost 12,000*l.*, and one about 25,000*l.* Buildings such as those of the new offices of the Prussian Diet are not in the hands of the department, nor are any of the numerous military or post-office buildings counted, as these are erected by the German Imperial Government. The new Imperial Houses of Parliament, the new Supreme Law Courts, and the buildings of the State railway lines are likewise not managed by the Prussian Board of Works, but by special departments under the control of the Reichstag.

A CORRESPONDENT of the *Times*, in regard to the claptrap which is now written and spoken about "a living wage," calls attention to the pay of clerks in the Works Department of the London County Council. A plant list clerk, twenty-five to thirty-five years of age, is offered twenty-five shillings a week, an entering clerk for invoices the same, a cartage and material clerk thirty-five shillings per week, and he must be from twenty-five to forty-five years of age. Every one of these men must have had a good education, must be decently dressed, and will have to pay travelling expenses to and from their homes. Yet their pay is not equal to that of the miners whom sentimental persons urge to starve in order to obtain a "living wage," when at any moment they can be paid more than is given to half the clerks in London. In truth, many of the bodies and individuals who are the first to declare that artisans are insufficiently paid, are the last to better the condition of their higher servants. There are many clerks in a contractor's office whose earnings in the year do not equal that of the bricklayers or carpenters, some of whom the moment work ceases on account of the seasons or the weather, begin to call for public aid as "unemployed."

THE Journal of the Franklin Institute for October contains some practical remarks upon anti-friction ball-bearings and their manufacture, in a paper contributed to the Institute by Mr. George F. Simonds. The author improves upon the present style of ball-bearing by the adoption of a bevel-cage bearing for light work, and a double-cage bearing as applied to heavy work. A ball-bearing to be of lasting commercial value must be absolutely accurate. Perfect spheres are indispensable, and both the balls and bearing surfaces must needs be of a temper always uniform and reliable. The author proceeds to assert that steel (no matter by what additional distinction it may be known), which carries thirty-one hundredths of 1 per cent. of carbon or less, will not harden; but above that point it will harden, and the higher the percentage of carbon which the steel carries the harder it will harden; but the more difficult, laborious, and expensive it is to work to its required shape. Quick cooling induces warping and breaking. When extreme hardness is not required, or when an article cannot safely be dipped in water or brine for rapid cooling, it is cooled in a slow-cooling medium like oil, rendering the article tough, although less liable to fracture. To overcome these difficulties, the author recommends a double bath hardening process, by means of which the article is plunged into brine, and then instantly transferred into oil without coming in contact with the air. By this process he combines the advantages, and obviates the objections, to both the quick and slow-cooling processes, and thus secures the desired hardness without setting up unequal strains in the article, tending to distortion by rapid cooling. In the ordinary system of ball-bearings, the balls are loose, and must be handled singly. Each ball is required to sustain both the weight and end thrust, but two rows of balls can be used, one row at each end of the bearing, and adjustment is needed on account of the wearing away of the balls and bearing surfaces. In the author's bevel-cage and double-cage bearings the parts are self-adjustable. The construction is the subject of a patent.

THE Society of Antiquaries has issued to its members a large folio volume, being Vol. VII., Part I., of the "Vetusta Monumenta." It consists of Mr. W. H. St. John Hope's description, with five plates and other illustrations, of the opening in March, 1890, of a tomb in Canterbury Cathedral, of an Archbishop. The tomb lies beneath a window on the south side of the ambulatory, St. Thomas's, or Trinity, Chapel, and opposite Archbishop Courtenay's monument. The tomb, constructed of Purbeck marble, and containing a coffin hewn out of a block of Caen stone, with lid of Purbeck, had been considered by some to be that of Theobald, *ob.* 1161, albeit somewhat later in style; but it is now believed to be that of Hubert Walter, a famous Chancellor and Justiciar, who, consecrated Bishop of Salisbury in 1189, was advanced to Canterbury in 1193, and died in 1205. Mr. St. John Hope supports this view by a reference to the catalogue of Archbishops in the Corpus MS. 298, which sets forth that Hubert was buried—

"In ecclesiâ Christi Cantuariensis juxta feretrum Sancti Thome;"

to which record Archbishop Parker added a marginal note: "aliter sub fenestrâ in parte australi," this being the exact position of the tomb that was examined. The contents of the coffin were found to be of great interest. They included (besides the body) fragments of the prelate's robes—his amice, stole, tunicle, dalmatic, and chasuble; his ring and pastoral staff; mitre of amber-coloured silk; a chalice, and patten. The buskins and jewelled sandals, all of originally green silk, are, it is stated, the only examples we yet have of that early time, and they, together with the smaller foot-gear of Bishop Waynflete, at Magdalen College, Oxford, will rank as, it is believed, the only English specimens known. The vestments and articles we mention are shown in facsimile colours in the plates. In the plan (1883) by Mr. George Smith, architect, we published on January 3, 1891, this tomb is shown as "21, Unknown," whilst "28, Abp. Hubert Walter," is marked against the wall of the south aisle of choir.

ON the 8th inst., being the festival of the "Quatuor Coronati," the Lodge of Freemasons bearing that name met at Freemasons' Hall; and Dr. W. Wynn Westcott was duly installed as Master, in succession to Professor T. Hayter Lewis, whose year of office had expired. The new Wardens are the Rev. C. J. Ball and Mr. Edward Macbean, and the treasurer (re-elected) Mr. Walter Besant. This lodge, which has not yet completed the first decade of its existence, was established on a literary and artistic basis; and the subscribers to its printed "Transactions," who are distributed over the face of the globe, already number nearly two thousand.

THE fact that two ladies were proposed as members at the last meeting of the Architectural Association is recorded in our columns this week, and has moreover been further thrust upon us by the receipt of a couple of indignant epistles from two members of the Association (not very much known to fame), calling upon the members generally to collect in numbers at next meeting and resist this unseemly innovation. We hope they will do nothing of the kind. There is no possible reason why ladies, if they have studied architecture thoroughly, should not practise as architects, except the single objection that personally climbing about buildings in progress is not very convenient or suitable work for women; but some architects of the other sex shirk that too. We presume the candidates are the two ladies who are known to have been working for some time in the office of an eminent London architect; we understand that they are bent on serious work, and they deserve credit for their spirit in facing a little probable foolish opposition in order to get the same advantages of study which other architectural students enjoy. The extension of the field for the exercise of women's abilities is one of the most important questions of the day; the best minds of the day are in favour of it; architecture is certainly a perfectly refined and unobjectionable study for women to take up; and if the Association repulses these lady candidates we think it will make a mistake, and will show itself wanting in chivalry, besides being behind the times.

THE ARCHITECTURAL ASSOCIATION:

HOW TO STUDY DESIGN.

THE second meeting of the members of this Association for the present session was held on the 10th inst., at No. 9, Conduit-street, Mr. E. W. Mountford, President, in the chair.

Mr. F. T. W. Goldsmith, senior Hon. Sec., read a list of nominations, the President calling attention to the fact that for the first time in the history of the Association two ladies had been proposed for election.

The following gentlemen were then elected members of the Association, viz., Messrs. A. C. Dickie, L. F. Crane, E. Nicholson, W. L. Schmolle, D. P. Jones, H. J. Triggs, H. Farquharson, F. L. H. Fleming, S. H. Underdown, A. Lovejoy, A. Atkinson, P. E. Culverhouse, D. Montagu, H. Y. Boreham, W. G. Clark, S. L. Crosbie, T. Tyrwhitt, A. Measom, G. E. Firmin, L. Moggs, R. Phillips, C. Parker, V. A. Flower, R. G. Bennett, E. H. Evans, A. T. Miller, E. A. MacDougall, W. F. Coombs, T. H. Lyon, C. F. Whitcombe, T. H. Bates, J. Kirkland, B. H. Webb, G. P. Reading, A. M. Torrance, E. Bates, H P. Gordon, S. D. Kitson, J. H. B. Foss, P. J. Farrer, G. F. Hopper, and R. Marshall.

On the motion of the President a hearty vote of thanks was accorded to Mr. A. W. Earle for the manner in which he had managed the business of the late *conversazione*.

Mr. Earle, in replying, remarked that the expenditure had been reduced this year by 58*l*.

Mr. A. Beresford Pite then read the following paper on "How to Study Design":—

Is it possible to design in harmony with the spirit of the age we live in? or to distinguish between the archæological and architectural beauty of ancient buildings? Why cannot we design buildings as an engineer designs an unsophisticated iron railway bridge without the result being hideously ugly? Will not the terrible buildings of the Victorian Gothic era with which our land is bespattered have in the eyes of succeeding generations the same beauty (is it architectural or archæological) that the crude classic productions of the Jacobean and Queen Anne periods have in ours? and if so, why do not we see the beauty of our bad architecture? Are not we perhaps on the wrong tack altogther and only manufacture picturesque grottoes of ancient relics while the genuine and characteristic architecture of our age is to be found in the works of engineers, mill and factory builders, and gin palace fitters?

Are the congeries of Mediæval and classical oddments, whether in plan or detail, that compose both our domestic and ecclesiastical architecture, really works of national art? Are not workhouses and hospitals or a Metropolitan Tabernacle or railway station interior nearer the mark? Do not architects, so far as their revived pedantries of art are concerned, run a great risk of becoming mere exotics, useful, perhaps, in arranging the business of a building, but to the world at large, as artists, idiotic in expression and utterance?

Can architecture as now practised by its professors continue to survive when the *débris* of the ages has been rummaged through and there is nothing new to revive—when the history of architecture has been learnt in vain, and the poor history-bred architect can no longer find fountains for prigging ready-made details from?

Must we really come to the conclusion that clothes can only be made on old patterns, patches and defects included, and only artistic pictures painted of bygone times and not of our own? Is there not beauty or pathos, simplicity or wondrous complexity in our own extraordinary age with its incessantly varying developments, that the architect can reflect in the buildings that he designs for its accommodation? Cannot we hope that some seeds of true architecture may be sown in our work-a-day buildings that may develop into a detailed style possessing true beauty? Does the barren unphilosophical study of our present authorities on the history of architecture assist us one whit, or even suggest to us the idea that our own age is the outcome of history, and that we should pursue its direction and learn its lessons of the motive of its soul rather than hark back again and again to the mere outer forms of nothing but bygone art "as if that soul were dead"? We may well ask ourselves the plain question whether if the so-called history of architecture comprised in illustrated authorities, a list of which would be short and easily made, was laid as much aside by architects and their educators and examiners as, say, the history of ornament is. though for no given reason—perhaps it is mere forgetfulness—we should be able to design at all? Imagine yourself, if you can, sitting down to design a church or a house in the country with the stipulation that you were not to revive any ancient style in your building, and does not the thought seem both absurd and painful? If so take for your subjects either a factory, say for boot blacking or fancy soap, or a railway station block in which it ought to be both absurd and painful to employ any ancient style, and see how you would be able to get along without the seemingly indispensible history. And yet if history teaches us anything as to the sources of life and motive in design it shows that the Greeks had little or no history of architecture to draw upon and revive, and that the Goths, who probably knew little or nothing as to ancient art deliberately set aside the productions of their ancestors even as types and thought and acted for themselves alone? Can anyone say that the results do not justify their methods of study, and shall we be forced to accept as a conclusion that the less we have of the study of architectural history as at present conducted the better?

Let us return to our examples; the results of your efforts to design either a factory or railway block would probably be satisfactory, and negatively beautiful in proportion to your regretful resignation to the facts of the case, and to your own ignorance of the pictures in your architectural history books, or, in other words, of what different people had done under differing circumstances elsewhere. What positive beauty your work possessed would consist in the manifestation of your skill in the choice, contrast, and arrangement of materials, in the proportions of your building, in its balancing of voids and solids, its recessings, in its simplicity or variety of line, in its unaffected expression of purpose and skilful adaptation to use. Every one of these qualities should be equally evident in the more monumental or domestic subjects, such as the church or country house. The church having no internal obstructions to sight, and being perfect acoustically, and with the house rejoicing in pure plate-glass windows where necessary; with further qualities such as a perception of the poetry of scale, of rhythm in contrast or repetition of grouping, and perspective, of mystery and distance; with fancy at work on the detail, applied perhaps unconventionally, but always where most effective in execution, and either emphasising construction or decoratively masking it, suggesting intellectual composition as well as picturesque freedom; the harmonious arrangement of features, as well as the application of free ornament and many other ideas in design, with play of light and shade effects of lighting and schemes of colour, all open to the student cut adrift from the modern school of architecture, and an interesting building having naturalness of purpose and real beauty is almost assured, so long as each quality of use and fancy is exercised with reasonableness and decency.

Parenthetically how far these results will be denounced as ugly by those who imagine that style in architecture is a *réchauffée* of past features we cannot say, but ugliness is a relative term, and is sometimes applied to nature where its use is perfectly absurd.

Some difficulty may occur to the mind as to the quality of ornament not cast in ancient moulds, but the same elements of beauty govern and compose ornamental detail as general architectural design, and there is ever open to the ornamentist the fountain of nature, which, unlike prosaic and traditional sources, is infinite as the sea. Let it not be supposed, however, that by ornament derived from nature, naturalistic ornament is meant as the forms of nature copied in carvings or paintings. The material and the purpose of the ornament, and many other circumstances, must control the conventionality of its treatment. Remember that a world of art and design exists between the Parthenon frieze and the actual horses and men that Pheidias saw around him, and that if intellectual discrimination is not used in the translation of form and matter, and design is not interposed between nature and ornament, no beauty will be the result. But this is at present a digression apart from carvings and paintings. How about mouldings, capitals, cornices, and purely architectural forms? Can these be designed except by ignoramuses, apart from style and precedent? Most certainly. In your blacking factory example you may only require a dignified and simple cornice of brick and stone to crown the wall, and though, from pure poverty of imagination and defective training, you may have no other resource than a doubly-debased Greek moulding, there is the conceivable possibility of a simple contrasting arrangement of light, shade, and reflection in the elevation considered in relation only to the wants of your front, and also a possible combination of line in contour of curved and straight members, forming an harmonious whole that shall be satisfactory and yet original, furnishing evidence of independence of thought and perception of beauty to your professional critics.

This may sound impracticable, and we expect to be told that ancient styles are the languages of the art of architecture, that their forms and details are its words, and that our fine imaginings without such words and diction are vain and utterly incapable of realisation. That we must learn these languages as part of our education, and trust either to heredity or to fickle fortune to teach us what to say and how to say it. Learn your styles, master your orders, copy them carefully, drum them into your memory. for a senseless reproduction as mere forms, and you will be qualified to become a student of a dignified architectural school, and in addition, if you cram up the mathematics of the proportional ratios, count the columns of the Parthenon, and master a few pedantic technicalities from Gwilt's Glossary of Terms, you may pass the art section of a qualifying examination.

That the training adopted to this end has its uses cannot be denied, for all training is valuable, and, as an introduction to the study of archæology, it may be definitely useful, though this is very far removed from the cultured dilettantism in which it took its rise; but to the architectural student it is purely incidental, and, as at present conducted, the study of the styles of antiquity is in no sense a qualification for the practice of modern architectural design. We may almost venture to say that the study of ancient architecture has had a baneful effect upon the art, and might with advantage be excluded for a couple of generations at least; it has almost entirely thrust out of view the study of design as the practical and necessary aim of the student, and

has wasted his time and talents with antiquarian researches resulting only in pedantic reproduction.

We are living in an age distinguished above all others for its inventive genius—the prime essential of genuine architecture—for wealth, another essential to the practice of architecture—having a profession of admiration for the arts—famed for municipal enterprise—an age, too, of unexampled peace and prosperity. But architects, instead of growing in public esteem as artists, are losing ground yearly; their works, instead of being characteristic of the whole spirit of the age, only illustrate their own personal fads and fancies and their love for the passing whims of the day. The whimsicalities of the gentler sex with regard to the latest fashion will not exceed in grotesque flightiness the eccentricities of the architects of the last few generations, as illustrated in their periodical fashion-plates or buildings, when they are reviewed say at the jubilee of the Architectural Association.

To what esoteric impulse are the gyrations of the muse of Architecture due, if not to the error of imagining that the past is the present, that ancient means modern, and that archæology is architecture? What accountable idea underlies the continuous and futile reproduction of architectural antiquities in modern design? Why should a consistent and enlightened race such as the English produce through their architects within a century such anachronisms as the National Gallery and the Royal Courts of Justice, or public statues either clothed in nothing but sheets, without canopies, or in full modern dress (gilded), covered by baldachinos, and surrounded by unprotected figures, mostly females, only ideally clad? What rational theory of architectural design, apart from archæology, can reconcile the production of St. George's Hall, Liverpool, with the Houses of Parliament at Westminster? Will not posterity justly conclude upon abundant evidence that the Victorian architects were petty-spirited, out of sympathy with their environment, each bent on vindicating some absurd archæological revival, wholly unsuited to their buildings, and wasting their eloquence in incriminating the age which gave them birth, as lacking faith, as Philistinic in spirit and cruel to all the arts, and in bewailing the hard fate that did not cause them to be born Barbarians or Feudal serfs?

And yet our age cannot be said to have lacked men practising as architects possessed of genius and talents of the highest value to architecture, with inventiveness, perception of beauty and form, of wide artistic sympathies, and of remarkable rapidity and adaptability of style. The English architects of the various revivals have been men of eminent gifts and enthusiasm for their art, and probably without their equals among European nations. The Greek revival, based upon the work of Stuart and Revett, Wilkins, Cockerell, and others, was no mere artistic fad; these men were profound archæologists, and the combination of artistic instinct and antiquarian learning displayed in such works as the beautiful Hanover Chapel—doomed, shall we say, through the apathy of architects?—the entrance to Euston Station, and University College, London, is worthy of unstinted admiration. There is a thoroughness of historical study manifest in these buildings that compels praise; in each case a lofty ideal conception has been attained, and a completeness of architectural feeling for every detail that betokens the earnest designer. Yet in each case the manifest powers of design possessed by the architect have been concentrated upon designing a Christian church as a Greek would have designed a heathen temple, an entrance to a station-yard that is but an enormous sacrifice of the art of architecture at the throne of the railway demon, and a college that for more than a generation was but a feeble outbuilding to a portico which was an approach to emptiness.

In each instance the march of time and the progress of national life have branded the works on which the architects bestowed such earnest care as anachronisms, impressive only as monuments without usefulness, and standing proofs that antiquarian design is not what this living go-ahead generation requires.

The Gothic revival which raged its turn after the Greek, and had an Italian rival as well as offshoots of its own to compete with, commenced, flourished, died, and is contemned upon the same archæological grounds as the Greek movement that we have just described. The presence of rivals produced friction, and the contesting archæologies each claimed antiquarian precedent only as their ultimate test of beauty.

Is it not utterly illogical and ridiculous to reflect that the beauty or propriety of nineteenth century architecture should be judged by the accident of birth to some detail either in the twelfth or thirteenth century or some corresponding epoch. Traces of this error can be still observed in architectural examination question papers.

In ecclesiastical design the iron bondage and dead weight of antiquity was endured longest, but when the inevitable revolt came it was only to resort to foreign types for a while and then to return to some period of hitherto forbidden fruit at home. The absurdities of most of this work are manifest to us now, but it is only a very short time ago that tremendous efforts were made to combine incompatible elements and to compel the nineteenth century to wear the cast-off clothes of its mediæval ancestors. But all dead men's clothes soon wear out and want replacing.

What shall we say to the revivals of the use of indistinct glass in small pieces fastened together with lead straps, of rough rubble walls unplastered, of chilly paved halls, of wide-mouthed, open-throated chimney openings, of confining the influence of the fireplace to the ingle nook, and numberless other barbarisms that have made us laughable to the world at large? And to what other lengths of imitative foolishness will not this historical method lead those who will blindly and unthinkingly follow. Apart from all questions of use or comfort, what beauty of form or of architectural idea is there in half the tricks of design and construction by which a modern building is made ancient in character? Put aside the fact that the Goths did so, we could give no reason, good or bad, for more than half of modern Gothic architectural design. The disposal of thicknesses in walls and buttresses, the scantlings of roof timbers and their framings, are governed by considerations which were good in days when walling was not paid for by the rod and timber was not purchased in scantlings at the Surrey Docks.

The fact is that English architects have been first bewitched with one beauty and then with another, and have finally endeavoured to be in love with all the beauties at once; in losing their hearts they lost their heads, and have lived in a mediæval dream of bliss while the nineteenth century marched on and left them further and further behind in what is really a morass of archæology, out of which no path to real living architectural design can emerge.

As we endeavoured, however, to give the modern Greek architects their due, those of the Gothic Renaissance must not be dealt with unfairly. We are to this day living under the romantic charms of their Mediæval England, and it is doubtful whether we can fairly gauge the verdict of the future on recent work. Great perseverance and consistency, an exact thoroughness of observation, a quick perception of the artistic qualities of picturesqueness, local beauty and appropriateness, a widening sympathy, still at work, for all the crafts and arts connected with home and civic life that flourished alongside architecture in Mediæval England, a general soundness and simplicity of construction equal to that of the Mediæval master builders, characterise the work of the leaders among modern architects of the Gothic revival. These men have absorbed themselves entirely into the spirit of a past age, and have succeeded in attaining their ideal—to live architecturally in the Middle Ages; and they can and do produce for us genuine works of art in all branches that compel admiration. Take a country house by a leading architect of the present day for an example, how picturesquely its rubble and half-timbered walls group themselves upon the hill, with what stern reserve the battlements crown the walls, and behind them at sufficient distance to allow of the passage of a cross-bow man rise the quaintly waving tile roofs. How the tower crowns the landscape, with what a sense of protection the high court yard walls enclose the entrance. What broad unwindowed surfaces of wall seem to defy the missiles of pre-explosive warfare. The mullioned and latticed windows, the timber framings, the stone jointing, the ancient leaden conduits, the very grin of the gargoyles all bespeak the thoroughness and perfection of the Mediævalism, which only consummate talent could realise for us in this most unmediæval age. How thoroughly the artist has grasped his problem too! Side by side with the architectural consistency one is conscious of a subtle artistic charm that seems to catch and secure effects in the modern building that the hand of time alone effected in the old prototype. The harmony of colour given only by age is sought for, the rapidly weathering tiles, the dark-toned bricks, the fumigated timbers, the coloured pargetting all are carefully considered and deliberately carried out to fix the Mediæval impression upon the mind, and emphasise the doctrine that nought but what is old can be beautiful in this grossly unartistic age. The internal arrangements are even equally Mediæval. With the homely charm of an ancient grange is combined the comfort of a modern house, but the essence of the charm is its antiquity. Hence, the quaint crookedness of plan that produces picturesque passages, the variety of levels, the deep window recessings, the great hall, the beamed ceilings, the panelled linings and numberless artistic methods of carrying the mind back to the times before this Rip Van Winkle of architecture either went to sleep or was born. The result is indisputably charming. It is artistic archæology tempered with civilisation! the dish itself, as well as its trimmings, is Mediæval! it does everything that is possible to put the hands of the clock back three or four centures, but it is not modern architecture.

In ecclesiastical buildings we have similar results. The hapless chances of ancient church history and building are reproduced with skill and patience. The acme of modern ecclesiastical art consists in the perfect realisation of what a beautiful fourteenth or fifteenth century church would have been, and as before, the laborious and earnest efforts of the artist have succeeded in a short span of life in running the gamut of the centuries and in reproducing in effect and feeling the presentment of the departed spirit of Mediæval art. In fact, often no higher praise is required than that the purity, beauty, and other qualities of ancient art are to be found in their present day counterfeit. The counterfeit is not dead, but practically living. We have a definite Renaissance of Mediæval ecclesiastical art, our cathedral work. Our churches, large and small, and our colleges, are the productions of a living school of artistic architects for whom, with their domestic brethren, we cannot but feel the warmest affection and enthusiastic admiration but they are exotics, they are contemporaries of Wykehamist William, of Harry the Eighth with his palace of Non-Such, of Spenser and his Faërie Queen. They sing with Shakespeare:—

> Tell me where is fancy bred,
> Or in the heart, or in head?
> How begot, how nourishèd?
> Reply, reply.
> It is engendered in the eyes,
> With gazing fed; and fancy dies
> In the cradle where it lies.
> Let us all ring fancy's knell;
> I'll begin it—Ding, dong, bell.

and they consistently suit the action to the word and bury true architectural fancy in a grave centuries deep.

We will not stop to discuss whether Queen Ann is dead or not, though she is evidently a guiding star still to the thirsty revivalist who, with faithful discrimination forsakes, with the progress of civilisation, such barbarities as metal casements for the newly invented double-hung sash, and welcomes a small increase in the size of manufactured glass that enables him to employ wooden bars of moderate section instead of small lead straps. What would not her deceased majesty have given, or that great architect Sir Christopher Wren, either, who preceded her, for such beautiful sheets of plate glass as now adorn our shop fronts? Oh, Revivalist, learn to follow the progressive movement of all real art, and become a designer of architecture instead of a mere dealer in her artistic antiquities.

We must proceed to draw our conclusions. We are not able to complain of real lack of architectural opportunity, and there is no want of architectural genius and capacity. Our architects are, however, devoted to a more or less stupid archæology, and therefore have ceased in any effective way to be artists for the age. Why should not this be remedied? Cannot we set ourselves, instead of against the stream of time and progress, with it? Why should not the requirements, methods, and opportunities of the men of our own time be studied, and our minds trained to fix themselves upon the universal characteristics of living art instead of upon its past expressions only? As there is no true art in representing a labouring man, rough hewn and coarse perhaps, but perfectly beautiful in degree, at his rugged work, as wearing fine clothes or a mask of Apollo, so let a warehouse front represent a warehouse, a railway station appear to be what it is, beautiful only in its sensibleness and greatness as a station, and as a station only; and let this sensibleness and a simple beauty take the place of the hopeless affectations of domestic design, and we may yet begin to earn

back again the wages of public esteem and confidence that we have forfeited by our archæological heresies. Have you ever discovered that the true beauty of architecture is to do thoroughly and manifestly what it is meant to do—whether to be ornamental, comfortable, monumental, or useful, as the case may require? For instance, what a solid impressiveness and grandeur there is about the vast supports and trabeated construction of the entrance of the Great Eastern Railway line into London, between Bethnal-green and Bishopsgate. This singular work of engineering is most architectural, and has stern and earnest beauty of character. Similar effects can be often if not always found where constructors have to make great effort to cope with difficulties, and some of the brick-and-girder engineering of the Metropolitan Railway is of this class, and has present in it, and manifestly so, most of the elements of sound architecture, and will, without any doubt, be regarded, by the broad verdict of the future, as some of the most characteristic building of our day. Why should architects segregate themselves, as if afflicted with an ancient leprosy, from the life of the city and world of to-day? Why should they leave all that is simple and direct in architecture to engineers, and lose their right to even the barren title of architect? Has not the Forth Bridge a piquant power of form, and a real, if not ideal, beauty, without the assistance of what you and I call architecture? And does it not compare favourably with the Tower Bridge, which, unless some undreamt-of convulsion happens, will for many generations be a monument of architectural failure, of great effort made to impart so-called art and architecture to a structure that left to itself would have been much more natural? Also, in other directions, why are characteristic buildings of the age, such as the Crystal Palace and the Albert Hall, eminently works of architecture, though not of architects? And, one must add, is not the block of Science Schools at Kensington, so impressive in mass and form, and so thorough and beautiful in detail and decoration, the work of an architectural amateur, and does it not assert its dignity successfully amidst all its modern professional rivals?

Is it not time that we considered and reconsidered our methods until we find ourselves facing the problems of our practice, not as champions of a past style and dead art, but as equipped artists who facilitate the advance of architecture by meeting heartily the spirit of the age in order to adapt her materials to their best uses, to accept her requirements for their greater usefulness, and to suitably and expressively ornament where required? To discover the true beauty there is in all building truly and simply done, and to emphasize it, to proportion it, to mould it for the true enjoyment of all. To throw aside the trickeries of paper design, and to realise that such trifles as the small panes of glass of which we have spoken, with many others that are—foolish though it seems to say it—so indispensable to the modern architect, are quite unworthy of ourselves. Let us see that, shorn of a fictitious archæological interest, our buildings may be beautiful in themselves as characteristic products of our high civilisation. Be natural as all the great architects have been before you. Learn by the true historical method the motive and spirit of past art; see if the Greeks, who built a beautiful monument as a Temple to Athene, together with the ecclesiastical and military engineers who erected the cathedrals and battlements of the Middle Ages, were not as far removed from you in the way they set about their work as possible. Was not their architecture the pure product of their age! and should not yours be so too, in spite of that haunting fear of ugliness, indefinite enough for any bogey, which will cease to trouble you when once conscious that you have succeeded in doing simple and beautifully serviceable construction, adjusted and controlled by your trained artistic instinct.

The growth and practice of the great Renaissance of Art in the sixteenth century will bear the closest examination in the service of modern architecture. The motive of its artists is equally good, though widely different; but do not imagine that it was a mere revivalism of archæology. No restoration of ancient buildings was attempted, a genuine and wealthy architectural genius fed on the beauties of past ages, only to develop itself in the most wonderfully modern achievements, not only of construction and arrangement, but of detail and of all accessory art. Michelangelo, in Rome, with the Baths of Caracalla and the Pantheon before him, conceived and constructed St. Peter's, and the true historical method of study that discerns how and with what ends he did it, will take the idea and motive as its guide to like results. The study of the *design*, or rather *designing*, of any one great building at home or abroad is the most fruitful source of profit to the architectural student. The history of the idea of St. Peter's, for instance, as it gradually grew from the work of Rossellini and Alberti to that of Bramanté, San Gallo, Raphael, and Peruzzi, before Michelangelo commenced his enormously grand and complete conception is most inspiring and instructive, and of infinitely greater use than a complete kalendar of every architect that ever was known, with dates and nicknames. This example of a great architect's power can be studied alongside with the expression of the same ideas of breadth and power of form in his sculptures and paintings, and in fact there is a whole education in the universality of artistic expression in such a historical study of principles. St. Paul's, London, is a similar example, as we happily have the whole scheme from start to finish to study. Observe the way in which Wren grasped his problems, and grasp your own little ones with similar firmness, courage, and breadth of idea. Take even more ancient buildings. Try St. Mark's, Venice, or an English Cathedral, and consider the alterations and additions, not as if executed in a delirium of irresponsible building fever, but as having a definite architectural purpose and idea in view. Why were these domes added? is a more important question than who added them. Why was this old front extended beyond all the limits of the buildings behind it? is a more important question than who did it, and did he know that it was a sham? Let us suggest to eminent examiners that the question Why is the Parthenon beautiful? is a much more vital one than in what technical terminology pedants would describe it or how many columns compose the portico? and other like trivialities.

Until we seek to study the reasons why things are beautiful, we shall never know how to design. Some naturally may have an intuitive perception that is denied to others, but for all that, the beautiful is but the revelation of unseen truths, and when revealed by this perceptive faculty, the lessons of the beautiful are manifest for all.

The teachings of the ages are in the effects that their works produce upon our minds, and it is little short of absolute folly to confine the training of architects in design to exposition of the mere forms of the language of architecture, and deny them insight into the meaning of the words used. Each stone, each plan embodies an idea that gave it existence at the hands of its constructor. Let us, as we have never done yet, seek to read this out of the stones, and enlarge our apprehension of beauty and of the possibilities of an art of design accordingly.

Mr. W. D. Caröe, in proposing a hearty vote of thanks to Mr. Pite for his eloquent and suggestive address, congratulated the Association generally upon the excellent attendance of members that evening, and upon the fact that the spell had at last been broken, and that there was a full house. He believed many of those who had come that evening would be pleased to have heard Mr. Pite blow all our unfortunate nineteenth-century architects to the winds, and teach them to take their proper place behind the engineers, and amateurs and other such nineteenth-century artists! The moral Mr. Pite had in view in his paper was that architecture should be simple and reasonable. He had very distinctly differentiated between admiring beauty because it was old, and admiring it because one saw and understood why it was beauty. In enforcing his view, Mr. Pite had not spared the copyists of old work, and no one agreed more thoroughly than he (the speaker) did, in thinking that architects had been accustomed to regard what was called style, that is, ancient style, too much in their architecture. Only the other day he heard an architect refer to the great advantage it would be if they had collections of sculpture, showing what could be done in thirteenth, fourteenth, and fifteenth century work, &c., so that if anyone was wanted to work in such and such a style, one could say, "Here is the man who can do it for us." This was the sort of thing Mr. Pite would condemn, but, at the same time, he would be the last man in the world, as his own work showed, to say that there should not be scholarship in architecture. It was discriminating scholarship more than anything else, that would teach them when architecture was reasonable and simple. What they were suffering from now, as the President of the Institute said the other night, was a plethora of ornament, and Mr. Pite had specially referred to the evil of ornament, merely plastered over buildings and culled here and there from old examples without having any vitality in it. Mr. Pite, while showing up this fetish of copyism, referred to the fact that they should study how Wren had built St. Paul's, and how Michelangelo had designed St. Peter's. He had thus pointed out that it was right to go back and to study the old work, but not to imitate it. He disagreed somewhat with Mr. Pite as to the causes why nineteenth century architecture was so often a feeble imitation of the past. He (the speaker) believed the causes were rather due to the extreme complications of the age in which they were living—the ready access they had to books and photographs, and the power of travelling they possessed. The vernacular of the nineteenth century, as the late Mr. Street said, was the architecture to be found in the small suburban streets, but he did not think Mr. Pite intended such to be taken as their examples of modern architecture. There were some small details on which he differed from Mr. Pite. He did not see why, when they were honestly building, apart from archæology, glass, when broken up in small pieces, was less beautiful than when it was used, as plate glass, in single sheets. Indeed his own personal reason for objecting to plate glass was that it had, viewed from the outside, no texture, and as such ought to be condemned in connexion with architecture. Moreover, if the glass was broken up into small pieces, one had the sense, when indoors, of the cosiness of being in a room, and not feeling, as in looking through plate-glass, that one was living in the open air. He believed he was right in drawing the conclusion that Mr. Pite did not mean to decry scholarship among architects, but simply to decry copying in architecture, which was not scholarship or design at all.

Professor Kerr, in seconding the vote of thanks, said it struck him that the general point of Mr. Pite's paper was its suggestiveness. Critics of a certain school would say it was vague, and no doubt it was, but it should be remembered that the subject was one which was not easily defined. Mr. Pite, however, had suggested a great deal, and to those who constituted that audience suggestiveness was perhaps better in the end than definiteness carried too far. He would like to correct Mr. Pite in one matter of history; he having alluded to the buildings at South Kensington as having been designed by an amateur. That was not the case, because, although Mr. Cole and others determined to do without architects, they could not get on without architects' clerks. Without contradicting Mr. Pite, he would say there were only two styles of architecture that had ever been devised in this world—the one being the Classic and the other the Gothic, the former, strange to say, being the style of the nineteenth century. The principle of the column and entablature began in Egypt and Assyria, and descended to Greece and Rome. Then Christianity, amongst other things, overthrew Classical architecture and introduced a style of its own. Roman architecture terminated with the Colosseum, and Christian architecture then passed into the Middle Ages and became characteristic arcuation, which was carried forward in Western Europe by the pointed arch—a delicate matter of historical criticism. Gothic architecture then flourished, and became perfected with great rapidity, passing through its whole career in about 400 years. When the Christian architecture had run its course, the revival of arts and letters led the intellectual world again to Italy, the Rennaisance architects took up the career of Classic architecture where the Colosseum had left it, and it had been carried on ever since. In France there was nothing else, that country being the leader of artistic development. The Victorian Gothic was a purely English movement. The High Church party took up the Gothic where it was left in the fifteenth century. The architecture of any country, in any age, was a sort of mathematical equivalent of the condition of the country at the time.

Mr. Langton Cole said that the motto of Mr. Pite's lecture seemed to be one they should drive into their minds thoughout the whole of their professional course, viz., that art is the expression of an idea. Two things followed from that—first, that unless they had ideas they could not have art, and, secondly, that unless their ideas were good their art would be bad. It seemed to him there was some hope of rising from the pessimism of Mr. Pite, true enough though it might be, if they would only endeavour to put some idea into the whole of their work. He agreed with what the lecturer had said as to the study of the Orders, and he almost wished the

painful study of these could be deferred or abolished altogether. At the same time, one could not help feeling that architects must be scholars, and one could only wish, in the words of the President of the Academy, that the knowledge of the past should not be an irksome burden, but rather a precious heritage. Referring to the Tower Bridge, he was prepared to defend it as a structure in which steel was a necessary component, and its designers were quite justified in casing the steel, as far as it was possible to do so, in solid and lasting granite. In fact, the construction of the building was very fairly expressed in its design.

Mr. Seth Smith remarked that he had derived much enjoyment from Mr. Pite's lecture, which had given him a great deal of suggestive thought. It all seemed, however, to come back to this—that they had been making a mistake, which most of them would now admit, in too closely studying the precedents of ancient work. He felt sure Mr. Pite was right in his opinion—that in these days of invention there was plenty of originality to reflect itself in architecture. He believed that progress was being made in exact proportion as they studied the best work of the day, and thankfully adopted those novelties and inventions which were successful, at the same time thinking for themselves, and trying to improve upon them.

Mr. Cole A. Adams, in cordially supporting the vote of thanks, said that whilst listening to Mr. Pite he had felt cast into the lowest depths of despair, and he could not help thinking that the lecturer had been too pessimistic in his remarks. Mr. Pite said, what had been so often remarked in that room before, that a building should express its purpose: of course it should: but had we not buildings in modern times by the hundred, which did this? There were men of strong original thought who, holding what Mr. Pite had said as to what the results of their studies should be, had produced buildings which were the admiration of men of culture. Surely, too, the testimony which came from France as to the architecture of the present time in this country was full of hope. Were there no buildings at the present day which would hold their own? He need only mention the names of Butterfield, Street, Scott, Burgess, Pennethorne, Smirke, and others who had produced buildings of marked originality and expression. A careful study of the works of the past was essential, and the most cultivated and original architect would frequently be found in him who had most carefully studied the past. He would like to mention the name of one who had ever been a good friend of the Association—he referred to Mr. Sedding—who adopted a perfectly free use of styles, and in whose church of the Holy Trinity, Sloane-street, although they might not like all its parts, they must at least recognise that it perhaps marked the commencement of a new era. Mr. Sedding broke through the generally-accepted traditions and claimed free trade in art. In conclusion he (the speaker) hoped that the younger members of the Association would not take the gloomy view adopted by Mr. Pite.

Mr. Locke Worthington believed that round London, and in the provinces, would be found buildings capable of being compared with some of the finest structures in the Classic or Gothic styles. It was a misfortune that so much of their enthusiasm was given to external and internal veneer. A building, when completed, should declare its construction, both inside and outside, and its beauty should be based on the education of the man who designed it.

The President, in putting the vote of thanks to the meeting, said they would all agree in thanking Mr. Pite, who had put off a visit to the East so as to be present amongst them that evening, although his following lectures would have to be postponed. With much of Mr. Pite's paper he entirely agreed. With regard to the study of ancient architecture, it was possible to study it too much. He believed that Mr. Pite took too serious a view of the bad state of English architecture at the present moment. They were not so tied to certain styles as Mr. Pite seemed to think. A few years back it was essential that a building should be in some well-known style, and that all the details, from top to bottom, should be historically correct. They had got a little beyond that now, and it would be found that in all the great buildings done by first-rate men, although they had copied the spirit of certain styles more or less, the details were all fairly original. Should the historic New Zealander ever come over here, no doubt he would find much to admire in nineteenth-century work, especially in Sedding's or Norman Shaw's buildings. He believed in small panes of glass, and disliked plate glass, which was simply horrible on account of the polish of the material. Small panes, too, added greatly to the comfortable appearance of the interior of a house.

The vote of thanks to Mr. Pite was then put, and carried by acclamation.

Mr. Pite, in reply, said that in whatever criticism he had made, he had been careful rather to speak generally of architects and architecture as a whole, but the mere fact that in the discussion only one or two names had leaked out, of men who were exceptions to the rule, would be taken to justify the rather sweeping or general view he had expressed. He was aware, for instance, of the charm of Sedding's work, but if it were not so riotously original, it would be a little more characteristic of what a worshipper in an English church would have enjoyed. Holy Trinity, Sloane-street, was, without doubt, beautiful, but he would like to cross-examine some of his friends as to why it was beautiful. He agreed with what Mr. Caröe had said about the requisite scholarship in an architect's training, but what was wanted was a scholarship that would make men think, and not merely copy. They should think out the problems of design even in detail for themselves, and not fall back on picture-books of architecture. The vernacular architecture of the day, he was conscious, could only be described as jerry architecture, and he had asked whether there was beauty in this, because unmistakably they saw beauty in the jerry architecture of Queen Anne. It was possible that future generations would copy the stucco pediments and abominations of suburban architecture as illustrative of our own generation. With regard to the study of history, they should try and find out what its motive was, and not merely use it as a fountain for imitation. As to the plate-glass red-herring that he had drawn across their path he would candidly confess that he could not design a decent window unless he drew lines across it. At the same time, he knew no race of individuals who thought well of small panes of glass, except architects, and that condemned the whole thing. Light had no texture unless it was full of fog or mist, and the dust or fog of the architectural intellect was very well illustrated by those little panes of glass and all such abominations. As to the Tower Bridge, Mr. Cole was quite welcome to his steel legs in granite breeches. He had been referred to as a pessimist, but he would rather be a cheery pessimist than a gloomy optimist. He took a very hopeful view of modern architecture, though he found it rather difficult sometimes to make up his mind as to what style he should design a building in, but he did not consider that need make him want altogether to throw up the job. He was obliged to Professor Kerr for correcting him as to the South Kensington buildings; though the Science Schools building was, he believed, designed by Mr. Godfrey Sykes, who was not an architect.

The proceedings then terminated.

ARCHITECTURAL ASSOCIATION, DISCUSSION SECTION.—The first meeting of the Discussion Section of the Architectural Association for Session 1893-4 was held at No. 56, Great Marlborough-street, W., on the 15th. inst., Mr. C. H. Brodie, A.R.I.B.A., in the chair. A paper entitled "A Few Notes on Iron-work" was read by Mr. M. Garbutt, A.R.I.B.A., and a discussion followed, in which Messrs. Greenop, W. H. White, Stockdale and the Chairman took part, and the whole subject was summed up by Professor Henry Adams, M.Inst.C.E., who attended as special Visitor. Votes of thanks to the author of the paper and to Professor Adams concluded the meeting.

COMPETITIONS.

VESTRY HALL, CLERKENWELL.—We understand that the selection in this competition is as follows:—1st premium, Mr. W. C. Evans Vaughan; 2nd premium, Mr. A. Saxon Snell; 3rd premium, Mr. E. J. Harrison.

LECTURES, QUEEN'S COLLEGE, CORK.—A course of lectures on "The History of Architecture" is to be delivered at this College by Mr. Arthur Hill, F.R.I.B.A., commencing on Nov. 25. This is, we believe, a new departure in the programme of Queens College, and one we are very glad to hear of.

TRADE CATALOGUES.—Mr. W. Cooper sends us his catalogue of horticultural plant, including farmyard constructions (pigeon-houses, kennels, &c.), greenhouses, hot-water pipes and heating apparatus, boilers, tents, garden implements, &c., even including temporary churches and their fittings.

Illustrations.

BIRMINGHAM GENERAL HOSPITAL.

WE give this week a large view of this hospital, in which architectural effect has been combined with practical arrangement and construction more completely and successfully than is usual in large hospital buildings.

Shortly after the competition was decided we gave, by the courtesy of the architect, illustrations of the plans and geometrical elevations to a small scale, accompanied by a long description, extracted from the architect's report, of the construction and arrangement of the building, which will be found in the *Builder* of March 26, 1892; so that it is hardly necessary to give any detailed description here, which would be in the main a repetition of what has been already said. But we are enabled to add here the detailed plans of two of the floors on a larger scale.

The architect is Mr. W. Henman, of Birmingham.

STAIRCASE, BURGOS CATHEDRAL.

THIS illustration is a reproduction of one of the drawings published in Mr. Prentice's fine book of illustrations of Spanish architecture of the Plateresque period, referred to in another article in the present number. In selecting, with the author's and publisher's permission, a plate for publication here as an example of the contents of the book, we might have chosen one which would have been more effective and striking from an artistic point of view than this; but in making the selection we thought we could not do better, for the purposes of this Journal, than take the opportunity of putting on record in our columns an accurate delineation of the design and detail of this famous staircase, built by Diego de Siloe (1519-22), which has been the delight and wonder of many generations of tourists and artists, but has usually been illustrated more from the painter's than the architect's point of view. To many in this country it is probably best known by the engraving from David Roberts's spirited but somewhat too imaginative picture; to the architect a presentation of the details as they actually are is of more value than a painter's transcription of the effect.

CONVENT OF SAN MARCOS, LEON, SPAIN.

THIS illustration, like the preceding, appears in Mr. Prentice's book, but is not taken from it in the same sense, as it was photographed for reproduction in this Journal at the time the drawing was exhibited in the Royal Academy of 1892, but was withheld until it should serve some special purpose of illustration. The main design of the façade (erected by Juan de Badajos in the early part of the sixteenth century) is a good example of the mingled richness and classic refinement of the Spanish Plateresque style, sadly marred however by the very ugly and disproportionately scaled clock-case, as it may be called, over the entrance archway. The building is carried out in a rich-toned yellow stone, with a red-tiled roof.

"HURSTBOURNE," HANTS.—In reference to the description of this house which we published last week, Mr. Gilbert Seale asks us to mention that he is carrying out all the stone carving on the work.

NEW STATUE OF THE QUEEN, ABERDEEN.—On the 9th inst. there was unveiled at Aberdeen a bronze statue of the Queen, by the late C. B. Birch, A.R.A. The statue occupies a site at the junction of Union-street and St. Nicholas-street. The site in question was formerly occupied by a statue of the Queen, by the late Alexander Brodie, of Aberdeen, a remarkable work for a young and untravelled artist, but the white Sicilian marble would not stand the climate, and the statue was accordingly removed to the interior of the vestibule of the Town-house, where it still remains. In the new statue the Queen is represented in a standing position, left foot advanced; in the right hand the sceptre, in the left an orb, and on the head an Imperial crown. The figure is 8 ft. 6 in. in height, and Her Majesty being a familiar sight to Aberdonians, from her frequent journeys to and from Balmoral Castle, the likeness is locally generally recognised as an admirable one. The new statue, while bearing a general resemblance to that (in marble) erected in 1889 at Oodypore, India, by the Maharanee, is by no means a simple replica in bronze, but really a new design. The pedestal was supplied from the Aberdeen Granite Works, and the casting made by Mr. Moore, Thames Ditton.

LONDON COUNTY COUNCIL.

THE usual weekly meeting of this Council was held on Tuesday afternoon in the County Hall, Spring Gardens, Mr. John Hutton, Chairman, presiding.

Tendering.—The Main Drainage Committee reported that they had considered tenders for the supply and erection of six new Lancashire boilers and accessories at the Deptford pumping-station. Messrs. A. Anderton & Sons offered to do the work for 3,865*l.* 4s. 2d., Messrs. R. Taylor & Sons for 4,051*l.* 3s., Messrs. Yates & Thom for 4,130*l.* 10s. 2d., and Messrs. Spurr, Inman, & Co. for 4,154*l.* 0s. 2d. The report stated that Messrs Anderton & Sons, the lowest tenderers, had not filled in the schedule of wages, and consequently were disqualified. Under all the circumstances the Committee thought it advisable that the tender of Messrs. Spurr, Inman, & Co. should be accepted, and they recommended accordingly.

Lieutenant-Colonel Ford moved, and Major Probyn seconded, that the tender of Messrs. R. Taylor & Sons be accepted.

Mr. McDougall, the Chairman of the Committee, explained that Messrs. Spurr, Inman, & Co. had on previous occasions carried out similar work for the Council in a satisfactory manner, and as their rate of wages showed an average of between 8d. and 9d. an hour, as compared with 6¼d. and 7⅜d. by other tenderers, and as there was only a difference of some 23*l.* 10s. in the amount of their tenders, his committee considered it advisable that their contract should be accepted.

On a division the amendment was carried by 40 to 38.

On the motion of Mr. Hoare the report was referred back to the committee.

Betterment.—The Parliamentary Committee reported that the question of the best means of bringing the principle of betterment before Parliament during the next Session had received the most careful consideration. They had come to the conclusion that the wisest course would be to introduce the principle in its application to the Tower Bridge approach, in connexion with which the cases of betterment (though the amount was not large) admitted of clear proof, and afforded an excellent illustration of the principle. They had also been influenced by the fact that in this form the principle had already commanded the assent of the House of Commons. They therefore recommended :—

"That an Improvement Bill be introduced in the next Session, which shall contain the provisions of the Bill of last year, on the same lines as those on which it passed the House of Commons, with respect to the approach to the Tower Bridge and the application of betterment thereto."

After considerable discussion, the recommendation of the Committee was agreed to, with an addition, moved by Mr. Marsland and seconded by Mr. Saunders, M.P.

The Water Supply Question.—The Water Committee submitted a report, stating that the Royal Commission having now completed their works and issued their report, it appeared to them quite clear that some arrangements must be made without delay for the provision of an additional water supply, and that the Council should be in a position to acquire such areas or lands as might be found to be necessary for the supply of water to the Metropolis. Parliamentary powers would be required for this purpose, and these should, in their opinion, in the first instance, be of a general character, specific and detailed plans being left for subsequent preparation and submission to the Council. The desired object might probably most conveniently be effected by an amendment of the Water Act of 1892, or by a separate Bill to enable the Council to purchase land and water rights by agreement for the purpose of supplying water to the Metropolis, together with powers of supply. They therefore recommended—

"That the Council do resolve that it is desirable for the Council to obtain powers for the acquisition of such areas as may be needed for the supply of water to the metropolis, and that the Parliamentary Committee be instructed to publish the necessary notices and prepare a Bill for that purpose."

Considerable discussion took place on the report of the Committee, Lord Farrer, Alderman Fletcher Moulton, Q.C., and others, strongly supporting the recommendation, which was ultimately adopted after the insertion of the words after the word "metropolis," "together with power of supply."

Proposed new Theatre.—The Theatres and Music-halls Committee reported that they had received six drawings from Messrs. Crewe & Sprague of a proposed new theatre at Camberwell. The site, which was at the angle of Denmark-hill and Coldharbour-lane, complied with the regulations of the Council. The theatre, which will contain seating accommodation for 1,053 persons, would be erected on land to be leased from the Council. The drawings were recommended for approval subject to certain conditions to make them accord with the Council's regulations as to exits, staircases, stage construction, and other matters, and this was agreed to.

After the transaction of other business the Council adjourned at 7 o'clock.

THE JUNIOR ENGINEERING SOCIETY.

THIS society opened its thirteenth annual session on Saturday last by a meeting held at the Westminster Palace Hotel.

After the transaction of some formal business, the retiring President, Dr. John Hopkinson, introduced the President-elect for the ensuing year, Mr. John Wolfe Barry, Engineer of the Tower Bridge, who subsequently delivered his Presidential address :—The Italians were, he said, our early architects and engineers. One of their greatest artists, Leonardo da Vinci, was the inventor of canal locks and the author of a variety of engineering designs. Between the departments of the military engineer and the civil engineer, both developed from the Italian masters, it was not always easy to maintain a clear line of distinction, and in India, particularly, the Royal engineer had invaded the preserves of the civil engineer to such an extent that widespread dissatisfaction existed in the Civil Engineering Staff of the Public Works Department of India, because the Government's promise to keep the two distinct had not been adhered to. Both the past and the present history of the profession showed that the possession of the high moral qualities of courage, bravery, constancy, loyalty, and uprightness was indispensable to the successful engineer. The progress made in engineering science during the past fifty years was illustrated by a comparison of the length and weight of fast trains, the safety of railway travelling, the length and weight of bridges, the dimensions of ship canals, and the speed and size of steamships, at the two extremities of the last half-century. In 1844 there were few railway statistics available, but taking those of thirty years ago, the President found that 1 person in 10,000,000 of the population was killed and 3 in 1,110,000 were injured by railway accidents, while in the past three years the proportions had been reduced to one in 56,000,000 killed and one in 1,280,000 injured. Among railway employés the increased safety was not quite so great, but for one killed in 347, thirty years ago and one in 86 injured, there was now only one railway servant in 723 killed and one in 127 injured annually. Highgate Archway had once been called the eighth wonder of the world, and forty years ago the Menai Bridge, with its two spans of 460 ft. and two of 230 ft. was justly so regarded. Compare these with the Forth Bridge, with its two spans of 1,760 ft. each, and the great strides made in engineering construction might be realised. Mention having been made of the great improvement in ocean steamers during the last forty years the President said that sanitary engineering had the same story of progress to show. In 1870 the London death-rate was 24·4 per 1,000, and at present 19·7 per 1,000, the difference representing an annual saving of 20,000 lives. The high death rates still prevailing in many of the great provincial towns like Manchester, Plymouth, Halifax, Salford, Blackburn, and Edinburgh, which were respectively 26·3, 26·8, 26·7, 41·5, 29·9, and 24, proved that a great deal remained to be done in the direction of sanitary improvement. Upon the question of the education required for the profession, Mr. Barry differed from the views of a former President, Dr. Anderson, in holding that education meant not mere instruction but that general exercise of the mind which enabled a youth to put forth his best qualities in the acquisition of special knowledge. With regard to the potentialities of engineering in the future, there was no reason to doubt that in the future as in the past, when we seemed to be approaching the limits of possibility, some new discovery would suddenly open out new and vast fields for the exercise of scientific knowledge. In locomotion enthusiastic investigators promised us railway trains at 150 miles an hour, and road traction independent of animal power. A ship canal connecting the Atlantic and Pacific oceans he believed would be made before long notwithstanding the unfortunate result of the Panama scheme. The future of ordinary and extraordinary marine monsters and of aërial machines opened up vast possibilities for improvements in mechanical science, and every new development by the mechanicians involved new problems which the constructive engineer would have to solve. Our population and our wealth were still increasing, and there must be an increasing demand for more railways, docks, harbours, bridges, roads and the like. He could see no reason to suppose that this increase would be less than heretofore, though there would, of course, be ups and downs.

A hearty vote of thanks was accorded to the President for his address on the motion of Mr. Sidney Boulding, seconded by Mr. Sydney H. Wells.

ARCHITECTURAL SOCIETIES.

GLASGOW ARCHITECTURAL ASSOCIATION.—The usual monthly meeting of this Association was held in the Rooms on the 7th inst., when a paper was read by Mr. George Hill on "Architectural Problems." The lecturer said that in every age of architecture different problems had to be faced as new conditions presented themselves. The works of the Greeks, the Romans, and the Mediævalists were alluded to as instances of different modes of construction to suit varied requirements. It was for the architect of to-day to familiarise himself with these, and to endeavour to work in the same spirit as his predecessors, so that he might be able to produce results that would be artistic and at the same time suitable. The architectural problems that have to be faced at present are principally connected with the designing of buildings for commercial purposes, notably in the treatment of shop fronts, where a large window area is a desideratum. The lecturer thought that more might be made of iron construction in this respect, and advocated that it should be exposed, maintaining that very good results might be got by this means and quite in accordance with the requirements. A discussion followed, and at the close the lecturer received a hearty vote of thanks.

ARCHITECTURAL SECTION OF THE GLASGOW PHILOSOPHICAL SOCIETY.—The opening meeting of the architectural section of the Glasgow Philo-sophical Society was held on Monday in the Rooms, 207, Bath-street, Mr. Campbell Douglas, President, in the chair. The Chairman, in his presidental address, discussed the relations of architecture to art. Architecture was not merely correct construction or the designing and building on scientific principles. If that were all, architecture might be merely the product of the builder or the civil engineer. But in architecture there was a mysterious quality which gave the work the dignity of art. It was here that imaginative intelligence displayed its genius. Without intelligence the result was merely mechanical, and without imagination there could not be any individuality, and without individuality work could not be associated with the mind which originated and fashioned it.

ENGINEERING SOCIETIES.

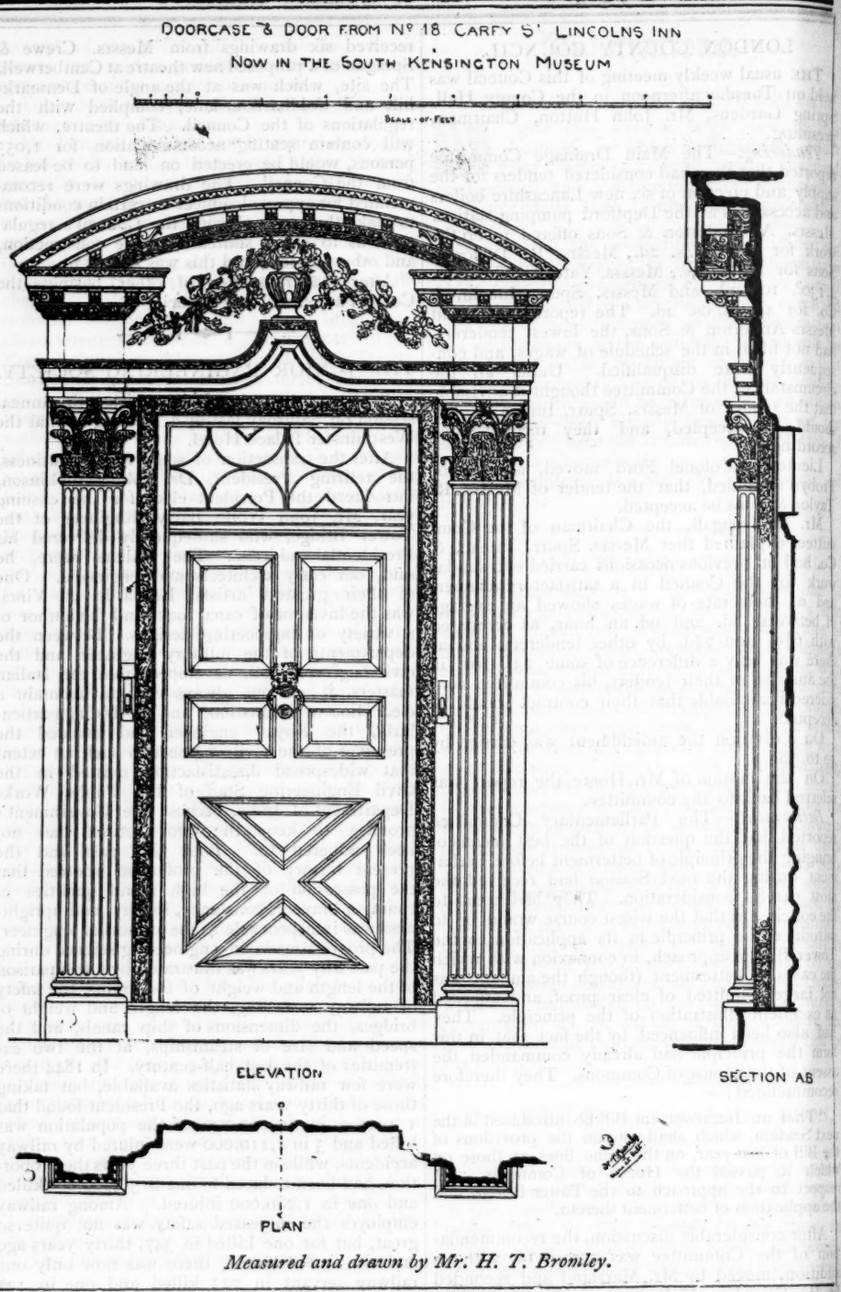
THE INSTITUTION OF CIVIL ENGINEERS.—The inaugural meeting of the seventy-sixth session of this society was held on the 14th instant, Sir Robert Rawlinson, K.C.B., Vice-President in the chair. Owing to the absence, from ill-health, of the lately-elected President, Mr. Alfred Giles, the address prepared by him for delivery on this occasion was, therefore read by the secretary. Claiming the indulgence of his audience on the score that he was the senior of all previous Presidents of the Institution at the time of their election, Mr. Giles proceeded to recall some circumstances connected with locomotion sixty years ago, contrasting the cheapness, safety and luxury of the modern railway, with the danger, discomfort, and expense of even the best lines of stage coaches. Not less striking was the development of the Post Office. In 1831 two mail coaches daily (one going through Newcastle to Edinburgh, and the other through Carlisle to Glasgow), were sufficient to carry the whole of the mails from London to Scotland. Referring to the virtual completion of the English railway system, the President opined that the work of providing like accommodation in the immense possessions of the Empire would yet provide employment for the railway engineer for many years. Turning to steam-navigation, it was stated that in 1819 the first steamer crossing the Irish Channel accomplished the distance of 63 miles from Holy-

head to Dublin in 7½ hours. The same trip is now frequently made in less than 3½ hours. Ocean transport was next considered, special reference being made to the advisability of adopting twin screws for all fast passenger-steamers. High-speed navigation involved special appliances for quickly loading and unloading at the docks, and also considerable extension and enlargement of the docks themselves. It was stated that the new Empress Dock at Southampton had been designed in the shape of a diamond, so as to allow of greater speed in getting vessels to their berths, thus also avoiding the necessity of swinging round at right-angles when passing through the gates. The President then made some remarks on the advantages which would accrue from a simpler procedure in passing private Bills through Parliament, and concluded with a reference to the progress and prospects of the Institution, especially in connexion with the contemplated re-building of the premises. After the reading of the address the premiums and prizes awarded last session were formally presented to the recipients.

LIVERPOOL ENGINEERING SOCIETY. — The second meeting of this society was held on the 8th inst. when a paper entitled "Some English Waterways" was read by Mr. J. A. Saner, A.M.Inst.C.E., who is engineer to the River Weaver trustees. The author, after giving a short historical account of the formation of canals and canalisation of rivers in the United Kingdom, gave the following as being the essential points for the consideration of an engineer when called upon to execute such works:—1. What watersheds has the proposed canal to pass through and where can he obtain water most economically? 2. What route, having regard to existing towns, will give the least number of changes of level and minimum cost of cutting tunnels, &c? 3. What is the most convenient size of boat to be provided for? 4. What size the locks or lifts should be made, and what sectional area the waterway should be? 5. What method, whether locks, lifts, or inclines, he will adopt to overcome the changes of level? 6. What system of towage should be provided for? 7. The cost of construction and the cost of maintenance. 8. Floods. Mr. Saner, in conclusion, gave an account of a "voyage" made by himself in 1891 from the River Weaver to the River Thames *viâ* the River Severn, in which he passed through portions of no less than six canals in addition to three rivers.

OLD DOORWAY, CAREY-STREET.

THIS doorway was formerly at No. 18, Carey-street, Lincoln's Inn, but is now in the South Kensington Museum. It is of deal, and was made in the early part of the eighteenth century.



Measured and drawn by Mr. H. T. Bromley.

Correspondence.

To the Editor of THE BUILDER.

MANGOTSFIELD SEWERAGE WORKS.

SIR,—I notice in the *Builder* of last week a note of the proposed Sewerage Works at Mangotsfield, wherein it is stated as follows:—"Mr. Nicholson Lailey, representing the firm of London engineers who have prepared plans of the suggested sewerage works, gave evidence with reference to the scheme." As this is, no doubt, a clerical error, I shall be much obliged if you will correct the same in your next issue. The Scheme of Sewerage was designed in my office, and I am in no way representing any firm of London engineers.

C. NICHOLSON LAILEY.

16, *Great George-street, Westminster, S.W.*

RE "WHAT IS A PUBLIC SEWER?"

SIR,—Your correspondent, "C. H. A.," in his letter to the BUILDER, October 28 ult., asks if any "cases" have been decided thereon.

I refer him to a case, Bateman and another *v.* The Poplar Board of Works, which is reported in the *Times* of May 19, 1886; also in the Law Reports, &c., see "Digest" of Reports for 1886 to 1890; also in the BUILDER, but I cannot give the date.

I was the principal witness for the plaintiff, and have full details (and plans) of the case in my possession if your correspondent would like to inspect same. RICHARD M. HISCOCKS.

58, *Haselrigge-road, Clapham, S.W.*

P.S.—This case came before the Court of Appeal, July 30, 1886, when Justices Cotton and Lindley decided that it was a *private drain*, but Justice Lopes was in favour of the plaintiff, and considered it a *public sewer*, &c. The above case is exactly similar to your correspondent's.

The Student's Column.

GEOLOGY.—XXI.

BUILDING SITES.

THAT geology has unconsciously played a very important *rôle* in determining the sites of ancient settlements is now generally acknowledged. The dwellings of early inhabitants in this country must have been confined to those formations and situations unfavourable to the growth of trees, where open expanses of turf for pasture were to be found, and where suitable stones for tool-making could be procured. All these conditions are to be found on Chalk downs, though not confined to them; there we find the remains of ancient settlements, and evidence is not wanting that many spaces have been cultivated.*

After settlements came towns and villages. Mr. Topley states† that the face of the Chalk escarpment around the Weald of Kent and Sussex is divided amongst 125 parishes, 119 of which lie beneath the escarpment and on its slopes, whilst only six are confined to the Chalk above. He considers that the latter were the earliest settlements. On the plateau where there is no drift, he says, all was turf, and there are found abundant Celtic remains. Later on, at the foot of the escarpment numerous villages were built, most of them on the Upper Greensand, and we find the parish extending from the Gault Clay up the scarp; so that each village had its due share of pasture (Chalk), arable (chiefly Upper Greensand), and woodland (chiefly Gault). These points are clearly shown in the diagram (fig. 1).

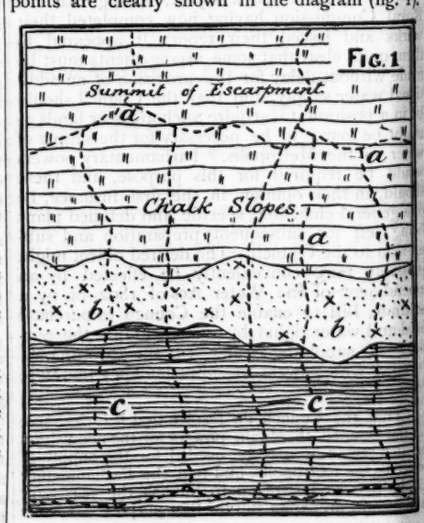


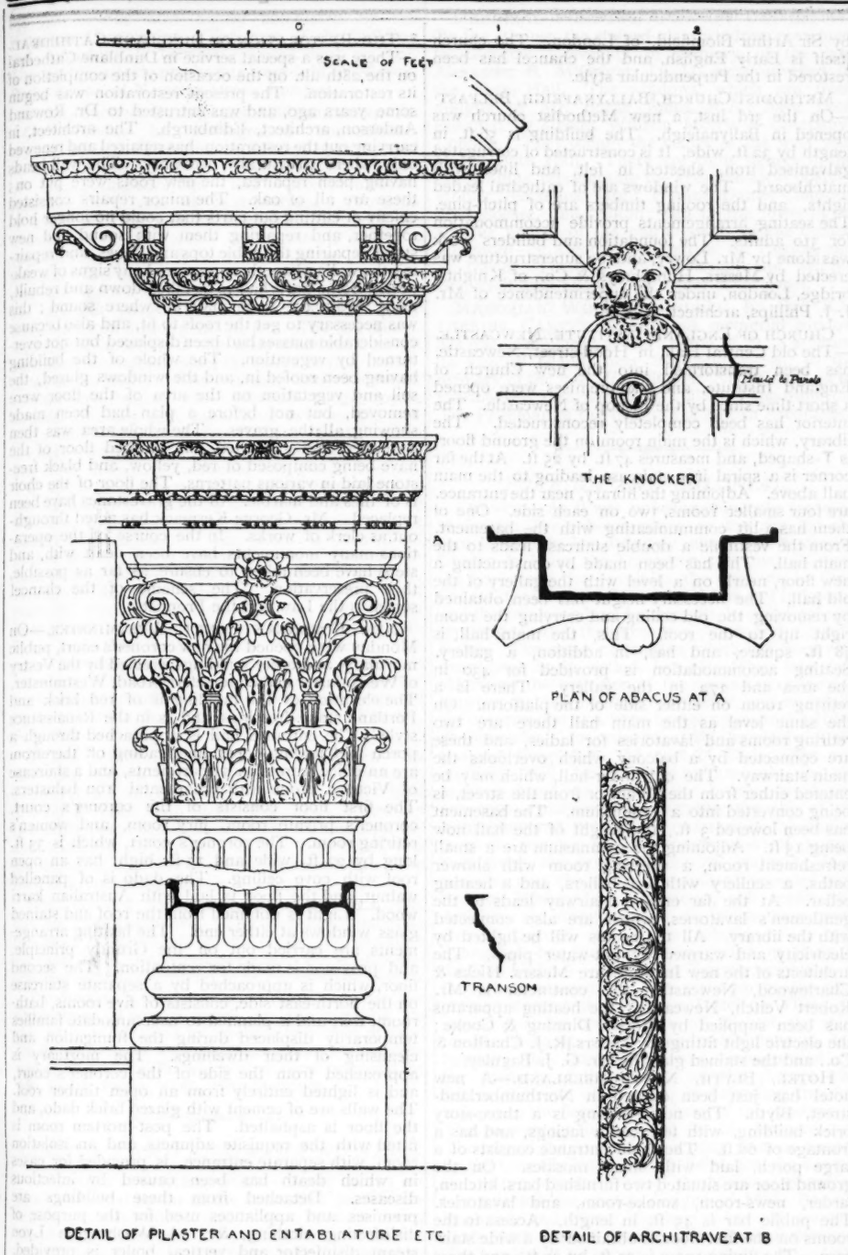
Fig. 1.—*Map showing the influence of Geological Structure on the Boundaries of Parishes.*

a.—Chalk. *b*.—Upper Greensand. *c*.—Gault Clay.
– – – – – Parish boundaries. X.—Villages.

The villages would obtain their water supply from springs at the junction of the Chalk and Upper Greensand.

* F. J. Bennett, "Proc. Geol. Assoc.," vol. x. (1887-8), p. 373.

† W. Topley, "Journ. Anthropological Inst.," vol. iii.



Measured and drawn by Mr. H. T. Bromley.

Mr. Bennett remarks that generally throughout England in the wide areas of the clay formations no towns or villages were to be found where the clay alone was to be met with, but where beds of sand and gravel capped the clay their occurrence decided the sites of the communities as being places where water could be found, so that the mere presence of the old towns and villages would indicate the spots where water-bearing strata existed. The extension of towns too has frequently been influenced by the distribution of gravel beds in their vicinity. Professor Prestwich has pointed out with reference to London, for instance, that in the Middle Ages the chief extensions took place on the gravelly soil, and it is known that prior to the existence of the London water companies, extensive clay tracts were bare of houses.

An interesting case is cited by Mr. Topley in the memoir previously alluded to, where he states that in the eastern part of Northumberland which is much covered with drift deposits, chiefly Boulder Clay, there rise up in many places isolated areas of sandstone belonging to the Coal Measures and Millstone Grit formations. On these rocky patches most of the ancient villages and the more important hamlets were built. Here the soil is dry and springs occur at the edge of the clay formation. The sites of these old settlements were determined by the distribution of the surface soil.

Coming, now, to more modern times we may say that the selection of building sites from a geological point of view is governed by two primary considerations—(1) the character of the soil in relation to the health of the prospective inhabitants of the dwelling, and (2) the structure of the ground in its bearing on foundations and stability of the building.

Building Sites in their Relation to Health.—To adequately discuss this phase of the subject we should have to introduce a considerable amount of medical evidence, which it is not our present purpose to do. All that we can now attempt, is to state a few general principles on which the relation of soil to health is based.

It is much to be regretted that so little has hitherto been done in accurately ascertaining the induction or fostering of disease by geological surroundings; here and there spasmodic efforts relating chiefly to some specific form of disease have been made, and these are of undoubted value in a limited sense, but something more is required. Certain authorities believe that sufficient light has already been thrown on the subject as a whole to enable them to make generalisations, but we feel sure that much yet remains to be accomplished before even the outlines of this section of the science can be firmly established. A considerable amount of information is derived locally from the inquiries instituted by the Local Government Board from time to time, but these are too frequently unaccompanied by evidence from others than medical men, the district surveyor, and local magnates—whose knowledge of geology is often shadowy in the extreme—to be of much permanent value. Where a careful investigation is backed up by a report from a really competent geological surveyor, however, we sometimes get interesting matter, which, taken with other cases and properly digested, is useful enough. Even where a report of this nature subsequently turns out to have no practical bearing on the subject under examination, it was necessary to be assured on that point.

Although so little has been done in determining the sites of dwellings from the point of view of health, we think the following is fairly well established:—

1. Alluvium, or marshland of streams and creeks is not a healthy site, both from its extreme lowness and from its otherwise damp character.

2. Clay land, especially when wet, is not to be recommended, its dampness leading to rheumatism, &c.

3. Gravelly soil is both healthy and unhealthy, depending on circumstances. Where it is tolerably thick (a few yards) and dry, it is healthy; on the other hand, where it is thin, and rests on clay, or is permeated by water it is unhealthy.

4. Loam, *i.e.*, sand mixed with a fair proportion of clay, is not a desirable site from the point of view of health, though if thin and resting on dry gravel it is fairly good.

5. Limestones and hard calcareous rocks generally form healthy sites, though care should be exercised in limestone valleys to select a spot where the foundation is not water-logged. We may also utter a word of caution in regard to the latter point. The water level in such rocks as limestones varies with the rainfall of the district; an apparently dry situation at certain times of the year may thus become very wet for months together.

6. Sandy beds, especially when in an elevated position, form healthy enough sites.

7. Sandstone, granite, or slaty rocks are usually healthy except when in a highly decomposed state, when they pass into loam, clay, &c.

Where dependent on water drawn from wells, or supplied naturally by gravitation from the hillside, all other things being equal, the building should, if possible, be erected where the water is only of moderate hardness, remembering that very hard water induces calculous diseases, whilst it is not economical for household purposes. On the other hand, if water is too soft it possesses considerable solvent power, and under certain circumstances this might lead to mineral poisoning; moreover, it propagates disease germs more readily than does hard water.

Proximity to cemeteries is another point for consideration. Where the sites of burial grounds have been ill-chosen, *e.g.*, on the slope of a hill in a porous formation of little thickness, the contaminated water therefrom sometimes finds its way to the stratum from which the village below derives its water. How often do we see the village pump or cottager's well in the immediate vicinity of the churchyard?

Low ground, composed of clays, and where floods are frequent, favour high mortality; but on high ground of calcareous rocks the mortality is very low. These remarks especially apply to cancer and the like. It has been said that in the history of disease, clays are connected with the most deadly scourges to which the human race has been subjected; limestones have no such appalling record.

Probably the most healthy site for building purposes is on dry gravel soil of moderate thickness, and in an elevated position.

SURVEYORSHIPS.

PENARTH.—On Monday a special meeting of the Penarth Local Board was held to elect a surveyor in place of Mr. James Court, the present surveyor, who had held the office for eight years and a half, and who recently was requested to resign. There were 200 applications, the following four of whom were first selected:—Messrs. Berkenhead, Bull, Evans, and Hawksley. Mr. Court's name was now, however, added, on the motion of Mr. R. Bevan, seconded by Mr. W. Coles, with the result that Mr. Court was re-elected.—*Western Mail.*

REREDOS, LOOE PARISH CHURCH, CORNWALL,—A new reredos has just been dedicated at Looe Parish Church. It was designed by Mr. Edwin I. Munk, of London, the architect from whose designs the church was built in 1883. The reredos is composed of polished variegated English alabaster and beerstone. It consists, in the main, of three compartments, surmounted by moulded and carved canopies, upon the panels beneath being sacred monograms cut in the solid. These are flanked on either side by pinnacles and finials supported by alabaster columns and moulded caps. The work has been carried out by Messrs. Harry Hems & Sons, of Exeter.

GENERAL BUILDING NEWS.

ALTERATIONS, GRAY'S INN.—Further alterations are about to be made at the Inn, under the superintendence of Mr. Isaacs, the Society's Surveyor. New chambers and class-rooms will be erected, facing the garden, at the open end of Gray's Inn-place, where the site of one of the two small houses is now being cleared by Mr. Howell J. Williams, contractor; and the Benchers have decided, it is said, to spend about 2,000*l.* in substituting an ornamental railing for the high wall which screens the garden from Theobald's-road. There is good reason for belief that Gray's Inn gardens, once a favourite resort of persons of quality, were laid out under Bacon's own direction. The books contain entries for the years 1597, 1598, and 1600, of payments made to him for disbursements in respect thereof. In 1609 he set up a summer-house (pulled down, together with some of the trees, one hundred and fifty years later) in memory of Jeremy Bettenham, a Reader of the Inn, whose executor he was. Spedding says that here Raleigh just before starting on his last ill-fated voyage to America, had a long discourse with Bacon, for whom he may possibly have brought the catalpa tree which, tradition says, the latter planted in the garden, near the wall about to be removed. It is expected that the chapel will be ready for re-opening early next year; the completion is somewhat delayed by the casing and strengthening of the walls with new brickwork, which has been found to be necessary.

WESLEYAN CHAPEL, MARAZION, CORNWALL.—Foundation stones of a new Wesleyan Chapel were laid at Marazion on the 1st inst. The building is to cost about 2,000*l.*, and will be 69 ft. long and 45 ft. wide, with seating accommodation for 550 persons. It will be in the Gothic style, and, in addition to the main building, provision has been made for the necessary vestries and usual offices. The front will be of granite, relieved by mouldings, and the main entrance, which will be elevated from the level of the street, will open into a large lobby. The plans have been prepared by Mr. R. Pascoe, of Marazion, and the contract has been let to Mr. George Miners.

PARISH CHURCH, TROON, AYRSHIRE. — The memorial stone of a new parish church for Troon has just been laid by the Duke of Portland. The new building will be of Gothic design, and the main approach is from Ayr-street. The plan is of cruciform outline, comprising—nave, 88 ft. by 36 ft. in width, with side aisles each 5 ft. wide; transepts each 31 ft. wide and 19 ft. deep; choir, 26 ft. wide and 16 ft. deep, with organ accommodation about 14 ft. wide and 11 ft. deep. The accommodation of the area is supplemented by galleries in each transept, and also over the vestibule at the entrance end of the nave, separate staircases being provided therefor. At the outer angle of the building a tower is placed, designed to be 180 ft. in height. The group of buildings when complete will comprise, in addition to the church, a vestry, session-room, retiring-room, and large hall, the whole being so arranged on plan as to form a kind of cloister-court on one side of the church. In the interior, the nave is divided into a srries of bays by stone shafts, with moulded bases and capitals, from which spring moulded arches of stone. The arches at the transepts are raised much higher. The roofs will be of barrel-arch outline internally, finished with stained pine lining, and relieved at intervals with moulded ribs. The external height of the building to the ridge is 62 ft., while the height of the front gable to Ayr-street is 70 ft. The transept gables are designed in harmony with the main gable. The work is being carried out with red stone from Montgomery Quarry for both exterior and interior work. The cost is estimated at about 10,000*l.* The architect is Mr. Hippolyte Blanc, A.R.S.A.

NEW NAVE, ST. MARY MAGDALEN CHURCH, HARLOW.—The new nave of the Church of St. Mary Magdalen, Harlow, was dedicated on the 1st inst. The nave, which was designed by Mr. Ewan Christian, has been built by Mr. William Wade, of St. Neots, Huntingdonshire. The building is in the Perpendicular style, and has a slated roof. There are eight Gothic windows of cathedral glass in the nave, three two-light windows and one three-light window on the north side, two two-light and one three-light windows on the south side, and one four-light window at the west end. The interior of the nave is 54 ft. long and 24 ft. wide, and the entrance is at the south-west corner, where the foundation of the tower has already been laid. The main entrance to the church will thus be through the tower when completed. The nave, which is capable of seating 150 persons, is paved with wood blocks, diagonally laid, except in the centre, which is paved with red glazed tiles. The roof is of deal.

RESTORATION OF WRAXALL CHURCH. — The parish Church of All Saints, Wraxall, Somersetshire, has just been re-opened after restoration. It was found that the south wall of the chancel was as much as 3 in. out of the perpendicular, and that other portions of this part of the structure were in a state which necessitated attention being paid to them, and it was therefore decided to restore the building. The chancel has been practically rebuilt. The north wall has been reconstructed, and the south chapel extended towards the east; the roof of the chancel has been raised. The restoration has been carried out in accordance with designs prepared by Sir Arthur Blomfield, of London. The church itself is Early English, and the chancel has been restored in the Perpendicular style.

METHODIST CHURCH, BALLYNAFEIGH, BELFAST.—On the 3rd inst. a new Methodist church was opened in Ballynafeigh. The building is 56 ft. in length by 32 ft. wide. It is constructed of corrugated galvanised iron, sheeted in felt, and lined with matchboard. The windows are of cathedral leaded lights, and the roofing timbers are of pitch-pine. The seating arrangements provide accommodation for 310 adults. The foundation and builders' work was done by Mr. Lowry, and the superstructure was erected by Messrs. Humphreys & Co., of Knightsbridge, London, under the superintendence of Mr. J. J. Phillips, architect, Belfast.

CHURCH OF ENGLAND INSTITUTE, NEWCASTLE.—The old Central Hall, in Hood-street, Newcastle, has been transformed into the new Church of England Institute, and the premises were opened a short time since by the Bishop of Newcastle. The interior has been completely reconstructed. The library, which is the main room on the ground floor, is T-shaped, and measures 47 ft. by 25 ft. At the far corner is a spiral iron staircase leading to the main hall above. Adjoining the library, near the entrance, are four smaller rooms, two on each side. One of them has a lift communicating with the basement. From the vestibule a double staircase leads to the main hall. This has been made by constructing a new floor, nearly on a level with the gallery of the old hall. The necessary height has been obtained by removing the old ceiling and carrying the room right up to the roof. This, the main hall, is 48 ft. square, and has, in addition, a gallery. Seating accommodation is provided for 430 in the area and 172 in the gallery. There is a retiring room on either side of the platform. On the same level as the main hall there are two retiring rooms and lavatories for ladies, and these are connected by a balcony which overlooks the main stairway. The old under-hall, which may be entered either from the library or from the street, is being converted into a gymnasium. The basement has been lowered 3 ft., the height of the hall now being 15 ft. Adjoining the gymnasium are a small refreshment room, a dressing room with shower baths, a scullery with tea boilers, and a heating cellar. At the far end, a stairway leads to the gentlemen's lavatories, which are also connected with the library. All the rooms will be lighted by electricity and warmed by hot-water pipes. The architects of the new Institute are Messrs. Hicks & Charlewood, Newcastle; the contractor is Mr. Robert Veitch, Newcastle; the heating apparatus has been supplied by Messrs. Dinning & Cooke; the electric light fittings by Messrs. R. J. Charlton & Co., and the stained glass by Mr. G. J. Baguley.

HOTEL, BLYTH, NORTHUMBERLAND.—A new hotel has just been opened in Northumberland-street, Blyth. The new building is a three-story brick building, with terra-cotta facings, and has a frontage of 68 ft. The main entrance consists of a large porch, laid with small mosaics. On the ground floor are situated two furnished bars, kitchen, larder, news-room, smoke-room, and lavatories. The public bar is 45 ft. in length. Access to the rooms on the first floor is obtained by a wide staircase. The dining-room is 30 ft. by 20 ft., and there is also a star-chamber and a county-chamber. Adjoining the dining-room is a commercial-room. The fire-places are of marble, with hand-painted tiling. The billiard-saloon is also situated on this floor. A suite of bedrooms is on the next story. Throughout, the hotel is fitted with speaking-tubes and electric bells. In addition to a cellar, there are wash-houses, coach-houses, and stables situated at the rear of the building. The total cost was 10,000*l.*, and the building has been erected by Messrs. J. & W. Simpson, of Blyth, from the plan of Mr. J. T. Cackett, architect, of Newcastle and Blyth. Mr. W. Armstrong, Blyth, was contractor for the painting; Messrs. Sanderson & Co., Blyth, plumbing; and Messrs. Laidler & Co., Newcastle, the decorating.

LADS' CLUB, DENTON, LANCASHIRE.—On the 4th inst. a new lads' club was opened at Denton. The building was designed by Mr. J. W. Beaumont, architect, Manchester, and consists of four class-rooms together with the secretary's office on the ground floor, and a reading-room and two game-rooms on the upper floor. The kitchen and rooms connected with it are in the basement. Attached to the clubhouse is a gymnasium about 65 ft. long by 45 ft. in width, roofed with plain iron, and provided with two large and three small dressings-rooms, with lavatories and baths. Up to the first story the structure is in brick and terra-cotta, the upper story being of framed timber filled in with plaster panels, while the roof is of red tile. The club and gymnasium are fitted up with the electric light.

NEW CHURCH AT SOUTH BANK, YORKSHIRE.—The foundation-stone of a new church, to be known as St. John's, was laid at South Bank recently. The site is at the corner of Redcar-road and Normanby-road. The church will have plain lancet-headed windows, and will depend entirely upon its outline for effect, as no ornamentation is possible owing to the want of funds. The contractors for the whole of the work are Messrs. Allison Brothers, of Middlesbrough. The architect is Mr. J. Mitchell Bottomly, of Middlesbrough.

THE RESTORATION OF DUNBLANE CATHEDRAL.—There was a special service in Dunblane Cathedral on the 28th ult. on the occasion of the completion of its restoration. The present restoration was begun some years ago, and was entrusted to Dr. Rowand Anderson, architect, Edinburgh. The architect, in carrying out the restoration, has repaired and renewed only where structurally necessary. The wall heads having been repaired, the new roofs were put on; these are all of oak. The minor repairs consisted chiefly of cutting out parts that could no longer hold together, and repairing them with sound and new stone, repairing the gable tops and skews, and repairing the walls where there appeared any signs of weakness. Some parts had to be taken down and rebuilt, using again the same material where sound; this was necessary to get the roofs to fit, and also because considerable masses had been displaced but not overturned by vegetation. The whole of the building having been roofed in, and the windows glazed, the soil and vegetation on the area of the floor were removed, but not before a plan had been made showing all the graves. The whole area was then concreted and asphalted, the finished floor of the nave being composed of red, yellow, and black freestone laid in various patterns. The floor of the choir is of tiles and marble. All the gravestones have been replaced. Mr. George Kermack has acted throughout as clerk of works. In the course of the operations many monuments have been dealt with, and steps have been taken to ensure, as far as possible, their preservation. The scheme of the chancel screen is the Law and the Prophets.

NEW CORONER'S COURT, WESTMINSTER.—On Monday were opened the new coroner's court, public mortuary, and other buildings, erected by the Vestry of Westminster in the Horseferry-road, Westminster. The elevation of the building is of red brick and Portland stone dressings, and is in the Renaissance style. The entrance hall is approached through a porch and folding-doors, and leading off therefrom are an office, caretaker's apartments, and a staircase of Victoria stone with ornamental iron balusters. The first floor consists of the coroner's court, coroner's private room, jury room, and women's retiring room. The coroner's court, which is 33 ft. long by 22 ft. wide and 15 ft. high, has an open roof with cove ceiling. The dado is of panelled walnut, and the floor is laid with Australian karri wood. Light is obtained from the roof and stained glass windows at either end. The heating arrangements are carried out on the Grundy principle, and provision is made for ventilation. The second floor, which is approached by a separate staircase on the north-east side, consists of five rooms, bath-room, &c., and is planned to accommodate families temporarily displaced during the fumigation and cleansing of their dwellings. The mortuary is approached from the side of the coroner's court, and is lighted entirely from an open timber roof. The walls are of cement with glazed brick dado, and the floor is asphalted. The post-mortem room is fitted with the requisite adjuncts, and an isolation room, with separate entrance, is provided for cases in which death has been caused by infectious diseases. Detached from these buildings are premises and appliances used for the purpose of disinfecting clothing, &c. A Washington Lyon steam disinfector and vertical boiler is provided. The building was designed by the Vestry's Surveyor, Mr. G. R. W. Wheeler, and has been erected by Mr. N. Lidstone, of Finsbury Park, Mr. A. Mann, acting as clerk of works. The total cost of the building, including fittings, &c., has been about 6,000*l.* The building is lighted by gas, the lamps being supplied by Messrs. Sugg & Co. The site was given by the Duke of Westminster.

COUNTY BUILDINGS FOR SURREY.—On Monday the new County Hall for Surrey was opened at Kingston-on-Thames. The new buildings were commenced at the end of 1890. They are situated upon two acres of ground facing Grove-road, and have a total frontage of 170 ft. and a depth of about 100 ft. They are built in the style of the Renaissance, from plans prepared by Mr. Howell, the County Surveyor. The buildings are faced with white Portland stone, and bear the arms of the county and other carved work. The main entrance is immediately under the clock tower, which is surmounted by a cupola, supported by open ridges. The entrance opens into a large hall, supported by columns of polished granite, and to the right and left are the offices for the Clerk of the Peace and the Council, the County Treasurer, County Medical Officer, County Surveyor, and other officers. There is also a fireproof room on the ground floor for the county records, and several cells, capable of accommodating twenty or more prisoners at quarter sessions or assize. A wide stone staircase leads from the lower hall to what is called the great hall, an apartment 60 ft. by 28 ft., with pillars of marble and Venetian windows. A corridor to the left leads from this hall to the court, which is 48 ft. by 33 ft. Surrounding the court are rooms for grand and petty juries, male and female witnesses, counsel, and officials. The council chamber is situated on the opposite side of the building. There are a large number of other rooms which will be used for various purposes, and on the second floor are the kitchen and the apartments of the caretaker. The building is fitted throughout with the electric light, which will be supplied

the new works now nearly completed by the Kingston Corporation. The cost of the building and furnishing is between 50,000*l.* and 60,000*l.* The marble mosaic pavements were laid by Messrs. Burke & Co., of Newman-street, London.

UNDERGROUND CONVENIENCE, KNIGHTSBRIDGE.—On Monday an underground convenience, erected by the Westminster Vestry, was opened at Knightsbridge. It is situated at the junction of the Knightsbridge and Brompton-roads, near the north end of Sloane-street. Provision is made both for men and women, with separate entrances. In the men's compartment, which is approached by a 4 ft. 6 in. Yorkstone staircase, are six water-closets, fourteen urinals, a lavatory and attendant's room. The water-closets are of the pedestal pattern, and fitted with mahogany seats, and iron flushing tanks, &c. The partitions, doors, and the whole of the other woodwork are of varnished Columbian pine, the doors having penny-in-the-slot locks. The urinals are of round earthenware backs, with polished rouge royale marble divisions and caps, and two marble and glass tanks are fixed for flushing them. The lavatory contains three basins. The division walls are of brickwork, surmounted with glazed framing. The women's compartment contains five closets, a two-basin lavatory, and an attendant's room. The whole of the brickwork is glazed and the outside coated with asphalte. The drain is formed of glazed pipes, and is provided with a manhole in each portion into which the drains from the closets, lavatories, &c., run separately. The floor is of concrete, overlaid with mosaic paving, and the roof is of glazed lights and ventilating gratings let into stone kerbs and supported on iron girders. The whole has been constructed by Messrs. Doulton, of Lambeth, at the contract price of 1,954*l.*, according to drawings, specifications and conditions prepared by the Vestry's Surveyor, Mr. G. R. W. Wheeler, A.M.Inst.C.E.

BOARD SCHOOL, RAWMARSH, YORKSHIRE.—On the 10th inst. a new school for the Rawmarsh School Board was opened at Ryecroft. The school is built of brick with stone dressings. There are two class-rooms and a large room, with cloak-room and lavatory. Mr. Joseph Platts, Rawmarsh, was the architect, and Mr. George Pugh, builder. The total cost, including land, was 2,697*l.*

POST OFFICE, AYR.—The new Post Office, Ayr, has just been completed. The building, situated at the head of Sandgate-street, is in the Scottish Baronial style, from designs by Mr. W. W. Robertson, Surveyor for Scotland to H.M. Board of Works.

PROPOSED SANATORIUM, CANTERBURY.—The Canterbury Town Council, at the meeting on the 7th inst., decided to purchase two acres of land for the purpose of erecting a sanatorium, the plans and specifications for which have been prepared by Mr. Frank Baker, C.E., City Surveyor.

SANITARY AND ENGINEERING NEWS.

UTTOXETER WATERWORKS.—These works are now completed so far as the Bramshall part of the scheme is concerned, and water is now being supplied to consumers. A covered service reservoir to hold 50,000 gallons has been built. New mains have been laid throughout the town, and all the old fittings connected with the old waterworks have been tested, and replaced where found faulty. The total cost of the works has been 4,792*l.* 2s. 11d., and the extras on the general contract only amounted to 22*l.* 12s. 8d. So many persons asked for the water during the construction of the works that the local authority find themselves with an income of over 400*l.* a year on the completion of the works, and applications for water are still coming in. The scheme has, therefore, proved a financial success. The engineer previously advised that the Bramshall springs would not prove sufficient for the consumers, and the authority have, therefore, decided to take steps to bring a further supply of water from the Somershall springs, which lie about 3½ miles from the town. The engineer to the scheme is Mr. W. H. Radford, C.E., of Nottingham.

PROPOSED PIER, ABERGELE, DENBIGHSHIRE.—A meeting was held at Abergele on the 4th inst., to consider the advisability of constructing a pier at Abergele. Mr. John J. Hammond, architect, of Rhyl, presented a plan of a pier, which he proposed should be 750 ft. in length and 12 ft. in breadth, with a tollhouse on the shore, and a landing jetty at the seaward extremity. At 15 ft. tides there would be 10 ft. of water at the pier-head. A resolution was passed in favour of the formation of a company.

STAINED GLASS AND DECORATION.

ALTAR CROSS, ST. MARK'S CHURCH, NOEL PARK, WOOD GREEN.—An altar cross was recently dedicated at St. Mark's Church, Noel Park, Wood Green, by the Bishop of Reading. It was designed by Mr. Rowland Plumbe, architect, and it is in solid polished brass. It is about 4 ft. in height, and is symbolical of the Apostles SS. Matthew, Mark, Luke and John, and on the base is the winged Lion of St. Mark's, in duplicate. The cross was manufactured by John Warner & Sons, London.

MEMORIAL WINDOWS, GLASGOW UNIVERSITY. On the 4th inst. the stained glass windows presented to Glasgow University in memory of the late Alexander B. M'Grigor, LL.D., were unveiled in the Bute Hall. The windows, which are from designs by Mr. Burne-Jones, R.A., have been executed by Messrs. William Morris & Company, London. They occupy the centre of the west wall of the Bute Hall. There are eight figures in the upper lights representing the great classical poets—Homer, Æschylus, Virgil, Horace, Dante, Chaucer, Shakespeare, and Milton; and in the lower lights are the figures of the patron saints of the United Kingdom—St. George, St. Andrew, St. Patrick, and St. David. There is a foliage background. In the cinquefoil light above is the figure of an angel.

MEMORIAL WINDOW, CHURCH OF ST. KATHERINE, CANVEY ISLAND.—A memorial window has just been placed in the Church of St. Katherine on Canvey Island, near Southend-on-Sea, to the memory of the late Mrs. Thomas Noton, jun. The window was designed by Mr. C. A. Nicholson, the Tite Prizeman of the Institute of British Architects.

FOREIGN AND COLONIAL.

FRANCE.—As it was unfortunately only too easy to foresee, the sub-committee on the site for the 1900 Exhibition has definitely selected as a site the Champ de Mars, the Trocadéro, the Quai d'Orsay, the Esplanade des Invalides, the Quai de la Conférence, the Cours la Reine, the Palais de l'Industrie, and the adjoining land between its longitudinal axis (prolonged) and the Avenue d'Antin and Cour la Reine. The same committee, which has been very unanimous in its action, has also taken into consideration the provision of the necessary connexion between the two banks of the Seine, and especially the construction of a large bridge opposite the Hôtel des Invalides. In order to satisfy the claims of the quarters situated in the east of Paris, fêtes and meetings will be held simultaneously in the neighbourhood of Vincennes. Lastly, rapid and economic communication between the site of the Exhibition and the various quarters of the capital is to be secured by the construction of branch lines from the principal terminal stations. It is probable that the central committee, presided over by the Minister of Commerce, will ratify this decision, the disadvantages of which have been already pointed out in our columns.——A new Synagogue has just been inaugurated in Paris, in the Rue Cadet.——M. Louis Bonnier, architect, of Paris, has obtained the first premium in the competition opened at Issy for a Hôtel de Ville; the second prize has been given to M. Bichoff, the third to M. Renault.——At Issy-les-Moulineaux, last Sunday, the monument was inaugurated to the memory of the soldiers of the district who fell in the war of 1870-71, in defending the fort built upon the debatable territory of the Commune. The monumcnt is designed by M. Brouard.——The jury of the competition among painters opened by the Conseil Général de la Seine for the decoration of the Salle des Fêtes of the Mairie of Baguelot, has selected the sketch designs of MM. Béroud, Rachoud, and Pierre Vauthier, who will compete again, with finished drawings, for the final decision. The result will be known in February next.——The work on the aqueduct which is to convey the sewage of Paris to the Plain of Achères is in active progress. The metallic portion of the bridge over the Seine at Argenteuil will be fixed shortly.——The new bridge over the Seine at Juvisy will be soon completed, and is expected to be open to the public next spring.——The pupils of the French School at Athens have found in the excavations at Delphi a marble plaque on which is engraved a hymn to Apollo. Above each syllable are signs which are supposed by some to be part of a musical notation.——The designs of the artists who have competed for the Orleans Cathedral windows are at present on exhibition in Orleans.——The town of Marseilles intends to erect a monument in honour of the sculptor Puget, on the quay of the old harbour, opposite the Cannebière.——The Minister of Public Instruction has just inaugurated a new theatre at Verdun, which has been built under the direction of M. Chénevière (architect).——The ramparts of Perpignan will shortly be demolished by the military engineering department.——A competition is to be opened at Néris-les-Bains (Allier) for the construction of a hot-baths establishment.——M. Mercié has just finished the model for the monument of the defence of Châteaudun. The town is represented by a young woman, wounded, holding a revolver and couched on a barricade at the feet of a soldier who is pointing his musket at the enemy. Behind the barricade is the dead body of a franc-tireur.——The death is announced, at the age of forty-six, of M. Henry Geyler, architect, a former pupil of M. Daumet. He died at the lunatic asylum at Vaucluse.——M. Roty has been commissioned to execute a medal in commemoration of the bringing the waters of the Avre to Paris.

BELGIUM.—According to the *Belgian News* the restoration of the Laeken Palace is expected to be completed by the beginning of next year. The building has for some time been in the hands of the decorators.——The new "Royal Chapel" conservatory at Laeken, which had to be entirely reconstructed on account of some error in measurement, is now completed.——The difficult task of placing the splendid ruins of the Abbey of Villiers in such a condition as to preserve them from further decay is being carried out by M. Licot, who has devoted several years to studying their details.——An exhibition of the works of the well-known Swedish painter, Smith-Hald, will shortly be opened at the Brussels Circle Artistique.——The Silvertown India-Rubber Company opened their first Electric Light Supply Station at Brussels on the 9th inst. This is the first public supply station of the kind in Brussels. M. Devreux was the architect to the works.——The Archæological Society at Brussels is arranging an exhibition of manufactures prior to the year 1830. It is to be opened in the Christmas week. The historical Hôtel Ravenstein, which is the home of the Society, will be the scene of the exhibition.——Notwithstanding the inclement weather rapid progress is being made with the Antwerp Exhibition Buildings. Canada proposes to be an important exhibitor, and has taken an area of 2,500 square mètres.——The extensive alterations in the Avenue de Kayser have now been completed, and are a great improvement to this thoroughfare.

MISCELLANEOUS.

BUILDERS' WORK AND THE LONDON SCHOOL BOARD.—At the weekly meeting of the London School Board, held on the 9th inst., at the Board-room, Victoria Embankment, a deputation attended from the London Building Trades Federation and presented the following memorial:—"1. That the recognised minimum rate of wages for the London district has not been adhered to by the builders doing the Board's work. 2. That the Board should insist on all contractors tendering for the Board's work supplying a schedule of wages paid to their *employés*, and if found less than the trade union rate of wages, the tender be not entertained. 3. That the Board do insert a clause in all contracts to the effect that no portion of the contract work be sub-let to any workman or workmen. 4. That in such parts of the work appertaining to a contract as cannot be done entirely by the contractor in the ordinary course of his business, sub-contracting be only allowed by the direct sanction of the Board. 5. That the workmen employed directly by the Board are not paid the recognised minimum rate of wages for the London district. The memorialists, therefore, pray that the School Board for London will favourably consider their requests embodied in this memorial."—Mr. Berdon, Secretary of the Federation, addressed the Board in support of the memorial, and submitted that the present system by which sub-contracting was allowed was detrimental to the interests of the ratepayers and injurious to the workmen, because it led to the scamping of work and the payment of a lower rate of wage. They urged that sub-letting should not be permitted, and that if the contractor paid a lower rate of wage than the minimum rate the Board should have power to terminate the contract.—The memorial was sent down to the Works Committee for consideration and report.

A PLEASANT SURPRISE FOR THE WORKMEN.—Messrs. J. Rotherham & Co., wholesale drapers and warehousemen of Shoreditch, are having some very large alterations and additions to their premises, amounting to about 25,000*l.* So far the work has proceeded with remarkable rapidity, the contractors being Messrs. Patman & Fotheringham, with Mr. H. Ford as architect. All the chimney stacks were completed on Saturday last, and the Union Jack hoisted, and it occurred to Messrs. Rotherham that they should do something for the workmen. Accordingly, they consulted their clerk of works, Mr. John Cropley, with a result that each of the deputy foremen, numbering ten, were presented with 20s., and every workman (numbering 110) with 2s. 6d., and the clerk of works and Mr. Peter, the builders' foreman, received a most handsome recognition of their services. When the men knocked off on Monday, they were called together on one of the floors, and the clerk of the works, in addressing the men, said that he had been twenty-six years in the building line, and had certainly never known a similar incident.

A VISIT TO THE LEYTON SEWAGE WORKS.—On the 11th inst., a large deputation of students, numbering about eighty, visited the above works, and was received by Mr. W. Dawson, A.M.Inst.C.E., Engineer and Surveyor to the Leyton Local Board, who conducted them through the works and explained in detail the process of treatment from the entrance of the crude sewage, its passage through the mixers, on to the precipitating tanks, and finally through the presses, to its ultimate form as sludge cake. The deputation expressed themselves very well satisfied with the effluent, and thanked the Engineer for the useful information given to them.

THE "QUADRANT" KITCHEN-RANGE.—We have received a prospectus of this new kitchen-range, which seems to possess some advantages, notably that of having ovens heated all round and not only on the top; if the heat can be regulated, the consumption of coal must necessarily be much less than when the oven is only heated from the top and one side. Another advantage of this range is that the fire can be raised or lowered without

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*Shelters, Sea Baths, &c. &c.	Southend-on-Sea Corp.	20*l.* 15*l.* and 10*l.*	Jan. 31'94
*Laying-out Grounds, &c.	Exmouth Local Board	25*l.* and 10*l.*	No date

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Pipe Sewer, Moss-lane, Timperley	Altrincham, U.R.S.A.	J. McKenzie	Nov. 21
Stable and Ambulance Room, Church Street-yard	Wellingborough Local Board	E. Sharman	do.
Drainage Work, Aboyne, Aberdeen	Jno. Campbell	...	do.
Warehouse, Crook, Durham	Crook Co-op. Soc. Lim.	...	Nov. 22
Additions to Schools, near Barnsley	Shafton School Board	H. Crawshaw	do.
Road Making, Sewering, &c. Christchurch	...	Hankinson & Son	do.
*Paving Works	Mile End Old Town Vestry	J. M. Knight	do.
Iron Roof and Columns, Heaton-lane	Stockport Corporation	S. Meunier	Nov. 23
House and Farm Offices, Inveramsay, N.B.	...	Jenkins & Marr	do.
House, Shibden, near Halifax	...	J. F. Walsh	do.
Warehouse, &c. Mount Sion-road, Radcliffe, Lancs.	Radcliffe and Pilkington Co-op. Soc. Lim.	Jas. Sellers	do.
Shops, Blackpool	Lane Ends Estate Co. Lim.	*Official*	do.
Cast-iron Pipes (268 tons)	Manchester Corp.	do.	do.
Water Supply Works, Wembury, Devon	Plympton St. Mary R.S.A.	do.	do.
*Excavating Works, &c.	St. Pancras Vestry	do.	Nov. 24
Two Cottages, Leeds	...	Swale & Mitchell	do.
Water Main, &c. St. Boswells, N.B.	Local Authority	Carter & Penman	Nov. 25
Cast-iron Pipes and Connexions	Ipswich Corporation	H. Roberts	do.
Vicarage, Llanarthney, Wales	Rev. D. Griffiths	D. Jenkins	do.
Alterations, &c. to West Cliff Hotel, Skinner-street, Whitby	R. R. Raine	R. Lennard	...
Well-Sinking	Haverhill (Suffolk) Loc. Board	J. Kemp	do.
Gravel Road Metal	Dorchester Town Coun.	*Official*	do.
Technical Institute, Waterloo-road	Runcorn Impt. Com.	J. Bowden	Nov. 27
Street Works, Fleming-square, &c.	Blackburn Corp.	J. B. McCallum	do.
Well-Sink and Tunnels	Sittingbourne Loc. Bd.	Easton & Co.	do.
*Paving New Street	Camberwell Vestry	*Official*	do.
*Farm Building, Sandford	Oxford Corporation	W. H. White	do.
*Repairs to Sewage Pump, Silvertown	Borough of West Ham	L. Angell	Nov. 28
*Erection of Chimney	Toxteth Park Loc. Bd.	J. Price	do.
Pipe Sewer, Hart-lane	West Hartlepool Corp.	J. W. Brown	do.
*Sewerage Works	Worthing Corporation	J. Mansergh	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
*Heating Dormitories, &c. School	Edmonton Union	T. E. Knightley	Nov. 28
*Widening Bridge, Banbury	G. W. R. Co.	*Official*	Nov. 29
*Sewerage Works	Northam U.S.A.	B. Latham	Nov. 30
*Drainage Works and Sanitary Fittings	Fulham Union	A. Saxon Snell	do.
*Pipes and Fittings, Buildings, &c.	Sandwich Corporation Waterworks	A. J. Catt	do.
*Sewerage Works	Rawtenstall Corp.	*Official*	do.
*Tarpaving	Bromley & Beckenham Joint Hospital Board	do.	Dec. 1
*Supply of New Stores, &c.	G. N. R. Co.	do.	Dec. 4
*Repairs, Painting, &c. of Schools	West Ham School Bd.	Newman & Jacques	Dec. 5
*Alterations at Leeds County Court	Com. of H. M. Works	*Official*	do.
Iron and Steel Bridge	Taunton Corporation	do.	Dec. 9
Re-building Oxford-street Market	Swansea Town Council	Wilson & Moxham	Dec. 11
*Pavilion, Royal Pier	Southampton Harbour Board	E. C. Poole	do.
Brick and Pipe Sewers (10,600 yards)	Queensbury Local Bd.	J. Drake	Dec. 12
Extension of Buildings, Fleet-street	Dublin Corporation	Spencer Harty	Dec. 14
*Waterworks, Sewerage, &c. Works	Leighton Buzzard L. B.	H. B. Nichols	do.
Aqueduct for River Nid (3½ miles), &c.	Bradford Corporation	J. Watson	Dec. 22
Alterations, &c. to Premises, Westgate, Peterborough	Mr. Baker	J. G. Stallebrass	No date
Six Cottages, King's Cross, Halifax	...	E. J. Shackleton	do.
Salvation Army Citadel	Stockport Citadel Co.	A. Gordon	do.
Hall and Offices, Newcastle-on-Tyne	Miners' Association	J. W. Dyson	do.
Trial Borehole	Swinton (Yorks) Loc. Board	G. J. Morson	do.
*New County Offices, Wakefield	West Riding of Yorkshire County Council	*Official*	do.
*Detached Warrant Officers' Quarters, Sandhurst	War Department	do.	do.
*New Buildings, Nottingham	Prudential Assurance Co.	A. Waterhouse & Son	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Clerk of Works	West Riding of Yorkshire County Council	3*l.* 10*s.*	Nov. 27
*Instructors in Woodwork	School Bd. for London	160*l.*	do.
*Assistant Surveyor	Neath R.S.A.	100*l.*	Nov. 30
Surveyor	East Dereham Loc. Bd.	175*l.*	Dec. 5
*Engineer to Water Undertaking	Nottingham Corp.	600*l.*	Dec. 7

Those marked with an Asterisk (*) are advertised in this number. *Competition, p.* iv. *Contracts, pp.* iv., vi., viii. *and* xxiii. *Public Appointments, pp.* xx.

burning the hands. The bars and boiler can also be removed without disturbing any part of the range. It is very difficult to judge of a stove without having had some practical experience of it, as many of these things have a way of getting out of order, but this one promises well. Messrs. Yates, Haywood, & Co. are the makers.

LYCH GATE, LAWHITTON, CORNWALL.—Lawhitton (St. Michael's) churchyard has recently received an addition in the shape of a lych gate. The new lych gate is composed throughout of English oak. The roof is covered with oak shingies, tinted green, and the whole is surmounted by a cross. The work was carried out by Messrs. Harry Hems & Sons, of Exeter,

HACKNEY MARSHES.—In December last, the London County Council deposited a Bill, by Part II. whereof the fee-simple of this Lammas Land (covering 337 acres) was to be vested in them for an estimated sum of 75,000*l.*, subject to certain compensations payable to commoners and others having beneficial rights in the marshes. Notice has just been given to all persons claiming in respect of freeholds or copyholds within Hackney Manor, or Lord's Hold, to prove their claims, as a sum of 9,533*l.* New Consols now stands—under judgment given in Crowfoot *v.* Lewis—in the names of certain of the plaintiffs, representing the amount paid to them as drivers of the manor. The distribution of this sum will, we understand, extinguish all commonable rights in the Lammas Lands within the Lord's Hold manor, and thus advance measures for acquiring the ground as an open space under the London Open Spaces Act, 1893. Towards the purchase moneys the Council have voted 50,000*l.*; the Hackney Board of Works, 15,000*l.*; and Lord Amherst of Hackney, lord of the manor, 5,000*l.*

SANITARY APPLIANCES.—On the 8th inst. an interesting lecture on Sanitary Appliances was delivered by Professor A. Wynter Blyth, Medical Officer of Health for St. Marylebone, at Carpenters' Hall, London Wall. The lecture was one of a course on building and sanitary construction, which is being given by the Carpenters' Company for the benefit of students, and was, therefore, of a rather elementary character. Various forms of good and bad traps, closets, and soil-pipes were shown and described, and man-holes, sanitary appliances in regard to ventilation, &c., were dealt with. In describing the short hopper closet, reference was made to some experiments carried out at the Sanitary Institute, as to the proper amount of water for flushing a closet. The general result of those experiments, which were rather elaborate, and the details of which will probably be published shortly, was that nothing less than a minimum of three gallons of water ought to be used for flushing purposes, for nothing less would properly clean closets and household drains.

MEETINGS.

FRIDAY, NOVEMBER 17.

Institution of Civil Engineers (Students' Meeting).—Messrs. James and Richard Goodman on "The Filtration of Potable Water." 7.30 p.m.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers).—Dr. A. Newsholme on "Nature of Nuisances, including Nuisances the Abatement of which is difficult." 8 p.m.

SATURDAY, NOVEMBER 18.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers).—Visit to Friern Barnet Sewage Works. 3 p.m.

MONDAY, NOVEMBER 20.

Royal Institute of British Architects.—Mr. Edward Falkener on "The Grecian House as Described by Vitruvius." 8 p.m.

University College.—Lectures on Chaldean and Assyrian Archæology, by Mr. W. St. Chad Boscawen; V., and "The Middle Chaldean Empire (B.C. 2200—1300)." 5 p.m.

Leeds and Yorkshire Architectural Society.—Address by the President, Mr. G. B. Bulmer. 7.30 p.m.

TUESDAY, NOVEMBER 21.

Institution of Civil Engineers.—(1) Mr. William J. B. Clerke on "The Tansa Works for the Water-supply of Bombay." (2) Mr. Jagannath Sadasewjee on "The Baroda Waterworks." (3) Colonel S. S. Jacob on "The Water-supply of Jeypore, Rajputana." (4) Professor Franz Kreuter "On the Design of Masonry Dams." 8 p.m.

Statistical Society.—Opening Address by the President, Mr. Charles Booth, on "Life and Labour in London: First Results of an Inquiry based on the 1891 Census." 7.45 p.m.

Sanitary Institute (Lectures and Demonstrations for Sanitary Inspectors.)—Professor A. Bostock Hill on "Trade Nuisances." 8 p.m.

Glasgow Architectural Association.—Lecture by Mr. T. L. Watson. 8 p.m.

WEDNESDAY, NOVEMBER 22.

South Kensington Museum (Lecture Hall).—Lectures on "Greek Sculpture" by Miss E. Sellers: "Praxiteles," I. 5 p.m.

Carpenters' Hall (London Wall, E.C.).—Lectures on Building and Sanitary Construction. VII. Mr. J. Wright Clarke on "Details of Plumbers' Work." 8 p.m.

Society of Arts.—Capt. M. H. Hayes on "Conformation of the Horse from the Artistic Point of View." 8 p.m.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers).—Visit to Disinfecting Station, etc., at St. Pancras. 3 p.m.

Liverpool Engineering Society.—Mr. Ivan C. Barling on "The Adjustment of Surveying Instruments." 8 p.m.

THURSDAY, NOVEMBER 23.

Arts and Crafts Exhibition.—Mr. Walter Crane on "The Use of Ornament." 8.30 p.m.

University College.—Lectures on Greek Sculpture: "Pheidias to Lysippus," by Professor Percy Gardner. VI. "Praxiteles and Scopas." 5 p.m.

Sanitary Institute (Lectures on the Sanitation of Industries and Occupations).—Dr. Sinclair White on "Metallic Dusts: Cutlery, Tool-making, and other Metal Trades." 8 p.m.

Institution of Electrical Engineers.—Discussion on Professor George Forbes' paper on "The Electrical Transmission of Power from Niagara Falls." 8 p.m.

Institution of Civil Engineers.—Students' Visit to the Kent Water-works, Deptford. 2.20 p.m.

FRIDAY, NOVEMBER 24.

Architectural Association.—Mr. H. W. Barnes on "Hard Wood Joinery," with examples. 7.30 p.m.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers).—Professor A. Wynter Blyth on "Sanitary Law: English, Scotch, and Irish; General Enactments Public Health Act, 1875; Model By-laws, &c." 8 p.m.

SATURDAY, NOVEMBER 25.

Queen's College, Cork.—Mr. Arthur Hill, F.R.I.B.A., on "The History of Architecture." I. 3 p.m.

RECENT PATENTS.

ABSTRACTS OF SPECIFICATIONS.

19,883.—DECORATION FOR MOULDINGS, CORNICES, &c.: *H. T. Savage.*—Instead of gilding with gold-leaf, oxydised metal-leaf is, according to this patent, employed. Thus it is claimed a more pleasing effect can be obtained at half the cost.

21,098.—BRICKS, &C.: *H. Haugood.*—The bricks which form the subject of this patent are made with one or two iron collars or links embedded in them. The space inside the collars forms a long hollow slot entirely through the brick. The object of this is to facilitate the building in of two iron tubes or rods perpendicularly through each brick, the hollow slots being filled in with cement as the work proceeds, the bricks becoming locked together.

21,839.—FIRE GRATES: *H. Leggott.*—This invention relates to a stove or grate in which the heat and products of combustion are made to pass to the flue from the bottom of the fire at the back through a chamber formed by the sloping forward of the back of the grate, on each side of which is placed a vertical chamber with air inlets, and provided also with openings to the room. These openings can be opened or closed to regulate the admission of cold or warm air into the room, thus raising or lowering the temperature of the department as desired.

22,738.—SEWER PIPES: *D. G. Andrew.*—The socket is double rebated, or has two parts of different internal diameter, the part of the smaller diameter forming a seat for the plain end of the pipe, while the part of larger diameter forms a groove or channel into which the cement or clay for making the joint sound and watertight is introduced

5,938 and 5,939. — FIREPROOF PAINTS, OIL, AND COMPOSITION: *R. J. Doyle.*—This invention relates to the method of manufacture of composition, consisting mainly of a mixture of vinegar, lime-water, salt, alum, petroleum, and fat or clay.

8,518.—FIREPROOF PLASTIC MATERIAL FOR CEMENT: *R. Stone.*—Pearlash and potash is added to the material while in a burning or melting state.

12,134.—VENTILATOR OR COWL: *B. H. Budding, jun.*—This invention consists of peculiarly shaped vanes, placed relatively at an angle, and the claim is to induce a current and exhaust the air.

17,204.—HINGES: *J. Held* (Cologne).—According to this invention, a rising hinge without springs is made to act by the weight of the door.

NEW APPLICATIONS FOR LETTERS PATENT.

OCTOBER 30.—20,421, T. Caink, Sewer Ventilation.—20,429, J. Phillips, Air and Water-tight Pipe-joint for Sewers, &c.—20,439, C. Scull, Syphon-flushing Cisterns.—20,446, W. Thompson, Roofing Tiles and Method of Securing Same.—20,452, H. Holland, Fixing Door-knobs upon Spindles.—20,457, J. Reid, Valve Closets.—20,473, S. Addison, Drain Stoppers.

OCTOBER 31.—20,515, F. Patterson, Water-closets and Urinals.—20,528, B. Story, Brick Stock or Block.—20,541, C. Greening, Drain Pipes and Joints.—20,542, E. Graham and E. Hesketh, Tenoning Tools or Mortising Machines.—20,564, D. White, Employment of Compressed Air for Spraying Paint, Tar, Whitewash, &c.—20,566, W. Osment, Creating Tenons on the End of the Rails of Doors and other like Frames.—20,596, F. Uafzger, Insulating Bricks, &c.—20,601, E. Dunford, Sash-fasteners.

NOVEMBER 1.—20,616, R. Bowes, Fireplaces or Hearths.—20,638, E. Morgan, Brick or Building Block.—20,654, A. Macdonald, Panelling for Buildings, &c., also applicable for Forming the Exposed Surfaces of Various Surfaces to Produce an Imitation Marble, &c.—20,656, A. Mirza, Securing the Doors of Strong Rooms, &c.—20,674, C. Reiser, Automatic Alarm for Preventing the Opening of Doors, &c.

NOVEMBER 2.—20,720, J. Nixon, Automatic Window-fastener, applicable to Sliding Doors, Panels, &c.—20,727, J. Cope, Preventing the Escape of Sewer Gas.—20,730, T. Cook, Latches and Bolts.—20,740, J. Kelly, Ball Water Hydrants.—20,741, J. J. and A. Lea, Swing or Movable Joints for Electric Light Fittings.—20,742, E. Baldwin, Rendering Asphalte, Cement, and similar Paving Non-Slippery. — 20,755, T. Marshall, Window-sashes.—20,762, T. Greene and C. Walker, Gas Lighting.—20,772, H. Holland, Fixing Door Knobs upon Spindles.—20,791, B. Dawson, Lime Kilns.—20,814, W. Watson, Manhole Frames and Covers.

NOVEMBER 3.—20,832, J. Atherton, Waste Water-closets.—20,876, W. Dodd, Fixing Glass in Windows.—20,880, E. Dickinson, Weather Boards or Draught Preventers.—20,899, G. Underwood, Drain-pipes.

NOVEMBER 4.—20,909, J. Neate, Chimney Top or Cowl.—20,948, T. Pitt, Dovetailing the Backs of Tiles.—20,999, W. Vaughan and others, Construction of Girders.

PROVISIONAL SPECIFICATIONS ACCEPTED.

17,241, T. Durrans, Means of Fastening for Securing Windows.—18,615, F. Ham, Air Flaps for Sewers and Ventilation.—18,719, T. & J. Witter, Protecting Buildings.—18,801, C. Körte, Siphon Cisterns.—19,171.—C. Taylor and J. Lomax, Attaching Door Handles and Knobs to their Spindles.—19,172, J. Coulthurst, Locketted Earthenware Drain Pipes.—19,540, A. Sanders and G. Beck.—19,639, J. Porter, Stoves or Fireplaces.—19,643, J. Reid, Syphon Valves for Cisterns, &c.—19,703, L. Jones, Fireclay.—19,710, J. Wilson, Kitchen Fire Ranges.—19,833, F. Diets, Ventilating.—19,888, J. White and G. Phillips, Window Sashes and Frames, &c.—19,939, A. Mack, Composite Boards or Slabs for Building Purposes.

COMPLETE SPECIFICATIONS ACCEPTED.

(Open to Opposition for Two Months.)

21,106, W. Barraclough and A. R. Rhodes, Fireplaces.—23,645, G. Pearce, Machinery for Sawing and Boring Timber.—24,044, D. Gill, Method of Isolating Rooms in Private Houses and Other Buildings.—24,117, J. Parker, Making Water-closet Seats.—12,880, R. Bammann, Production of Marble-like Plaster.—15,368, J. Barnsley, Stench Trap for Use in Lavatories, Baths, Sinks, &c.—17,843, H. Kells, Clamps.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

NOVEMBER 6.—By *J. Baker & Son:* "The Kilburn Mill," Shoot-up-Hill, Brondesbury, part f. and part l.g.r. 3*l.*, 2,200*l.*—By *Weatherall & Green:* 18, St. Michael's-rd., Stockwell, f., r. 40*l.*, 430*l.*; 241 and 243, South Lambeth-rd., u.t. 72 yrs., g.r. 22*l.* 18s., r. 96*l.*, 610*l.*; 5 and 6, Stockwell-av., u.t. 78 yrs., g.r. 23*l.* 2s., r. 84*l.*, 460*l.*—By *A. Thomas, Peyer & Miles:* "The Shropshire Brewery," Wellington, Salop, and sixteen public and beer houses attached, f. and l., 9,600*l.*—By *Moss & Jameson:* 54, Drayton Gardens, Kensington, u.t. 50 yrs., g.r. 4*l.* 10s., 76*l.*—By *J. & R. Kemp & Co.:* 105, Crawford-st., Marylebone, u.t. 14 yrs., g.r. 10*l.* 10s., r. 75*l.*, 350*l.*

NOVEMBER 7.—By *Field & Sons:* 53, High-st., Borough, f.r. 178*l.* 3s. 6d., 2,850*l.*—By *F. W. Glasier:* 12, Hall-st., City-rd., u.t. 49 yrs., g.r. 6*l.*, r. 37*l.*, 345*l.*; 5 and 6, Park-ter., Kensington, u.t. 30 yrs., g.r. 8*l.*, r. 76*l.*, 730*l.*—By *B. Brown:* 22, High-st., Plumstead, u.t. 32 yrs., g.r. 5*l.*, r. 50*l.*, 500*l.*; 48, High-st., n.t. 46 yrs., g.r. 3*l.* 3s., 120*l.*; 45, 48, Lillieshall-rd., Clapham, u.t. 76 yrs., g.r. 13*l.* 10s., r. 86*l.*, 725*l.*; 55, 57, Lillieshall-rd., u.t. 76 yrs., g.r. 12*l.* 3s., r. 88*l.*, 735*l.*—By *Wilkinson, Son & Welch (at Brighton):* 106, Trafalgar-st., Brighton, f.r. 25*l.*, 400*l.*; 2 to 8 even, Rugby-pl., f.r. 73*l.*, 1,035*l.*; 9, 32, Adur-ter., Southwick, f.r. 27*l.*, 465*l.*; 16, White Rock-pl., f.r. 15*l.* 7s. 8d., 250*l.*

NOVEMBER 8.—By *Furber, Price & Furber:* 22, 23, 23½, Wheler-st., Spitalfields, f.r. 110*l.*, 1,100*l.*—By *J. H. Bulmer:* 50, Bush-rd., Rotherhithe, u.t. 45 yrs., g.r. 3*l.* 12s., 220*l.*—By *T. G. Wharton:* 321, 323, Burdett-rd., Limehouse, u.t. 47 yrs., g.r. 9*l.*, r. 80*l.*, 600*l.*

NOVEMBER 10.—By *Baker & Sons:* 26, 27, Sisters'-av., Clapham, f.r. 155*l.*, 1,455*l.*: "Urquhart House," Buntingford, Herts, and 2 acres, f.r. 45*l.*, 700*l.*

[Contractions used in these Lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.]

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G. ton	9/0/0	0/0/0
Teak, E.I. ..load	9/10/0	15/10/0
Sequoia, U.S.ft.cu	2/3	2/6
Ash, Canada load	2/5/0	3/10/0
Birch, do.	2/5/0	3/5/0
Elm, do.	3/0/0	4/5/0
Fir, Dantsic, &c.	1/5/0	2/10/0
Oak, do.	2/15/0	5/0/0
Canada	5/10/0	7/0/0
Pine, Canada red	2/15/0	3/5/0
Do. Yellow	2/10/0	4/15/0
Lath, D'ntsic, fath	4/10/0	5/10/0
St. Petersburg..	5/0/0	6/10/0
Wainscot, Riga, &c., log	2/10/0	4/15/0
Odessa, crown	2/10/0	4/15/0
Deals, Finland 2nd & 1st std 100	8/0/0	10/10/0
Do. 4th & 3rd	7/10/0	8/0/0
Do. Riga	7/10/0	9/0/0
St. Petersburg, 1st yellow	10/0/0	13/10/0
Do. 2nd yellow..	8/0/0	9/0/0
Do. white	8/10/0	11/0/0
Swedish	8/0/0	16/0/0
White Sea	8/0/0	16/10/0
Canada, Pine 1st	22/10/0	29/10/0
Do. do. 2nd	17/0/0	18/10/0
Do. do. 3rd &c.	7/10/0	10/10/0
Do. Spruce, 1st	9/0/0	11/0/0
Do. do. 3rd & 2nd	6/10/0	7/15/0
New Brunswick	6/0/0	7/5/0
Battens, all kinds	3/0/0	15/0/0
Flooring boards, sq., 1 in. prep. 1st	0/10/6	0/15/0
Do. 2nd	0/7/3	0/12/6
Other qualities—	0/5/3	0/7/0
Cedar, Cuba ..ft.	/4	/4½
Honduras, &c	/3½	/4½
Mahogany, Cuba	/4	/6½
St. Domingo, cargo av.	/3	1/6
Mexican do. do.	/3½	/4½
Tobasco do. do.	/3½	/6
Honduras do. ..	/4	/5½
Box, Turkey ton	4/0/0	13/0/0
Rose, Rio	8/0/0	20/0/0
Bahia	7/0/0	18/0/0
Satin, St. Domingo	0/0/6	0/1/3

TIMBER (*continued*).		
Satin, Porto Rico	0/0/7	0/1/6
Walnut, Italian ..	0/0/3½	0/0/7
METALS.		
Iron—Pig, in Scotland ton	2/2/5	0/0/0
Bar, Welsh, in London	5/17/6	6/0/0
Do. do. at works in Wales	5/7/6	5/10/0
Do. Staffordshire, in London	6/0/0	6/10/0
COPPER—British, cake and ingot	45/10/0	45/15/0
Best selected ..	46/0/0	46/5/0
Sheets, strong ..	54/0/0	0/0/0
Chili, bars	42/5/0	42/12/6
YELLOW METAL lb	0/0/4½	0/0/5
LEAD—Pig, Spanish ton	9/15/0	9/16/3
English com. brands	9/17/6	10/0/0
Sheet, English, 6 lbs. per sq. ft. and upwards	11/0/0	0/0/0
Pipe	11/10/0	0/0/0
ZINC—English sheet ton	21/5/0	0/0/0
Vieille Montagne	21/15/0	0/0/0
TIN—Straits	76/10/0	77/0/0
Australian	77/0/0	77/10/0
English Ingots..	81/10/0	82/0/0
Banca	88/0/0	89/0/0
Billiton	79/0/0	80/0/0
OILS.		
Linseed ton	20/5/0	20/10/0
Cocoanut, Cochin	32/10/0	32/15/0
Do. Ceylon	27/10/0	27/15/0
Palm, Lagos	20/10/0	0/0/0
Rapeseed, English pale	23/5/0	23/10/0
Do. brown	21/15/0	0/0/0
Cottonseed ref.	21/15/0	23/0/0
Oleine	22/0/0	24/0/0
Lubricating, U.S.	4/0/0	5/0/0
Do. refined	5/0/0	12/0/0
TAR—Stockholm barrel	0/18/6	0/19/0
Archangel	0/12/6	0/0/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.*]

BARNET.—For the supply of 400 tons broken granite, Bardon Hill, &c., for the Local Board:—

	Per ton. s. d.		Per ton. s. d.
Griffiths (Guernsey granite)	15 9	Enderby Granite Co.	11 4
Grimley & Son	12 8	Manuelle	11 4
Whitwick Granite Co.	11 8	Herbert Clarke & Co.	11 3
Van Praagh, Crosby-square, London (Bardon Hill)*	11 6	Fergusson Starkey	11 1
		Trye	11 0
Summerfield	11 6	Nowell & Co. (accepted)	10 11

BIRMINGHAM.—For the reconstruction of the Empire Palace of Varieties, for the Empire Palace Company, Limited (first contract). Mr. Frank Matcham, architect, 9, Warwick-court, Holborn, London, W.C. Quantities by Mr. Frederick Thomson, surveyor, 5, Great James-street, W.C.:—

T. P. Hall	£13,000	W. & J. Webb	£11,196
Stephens, Bastow, & Co.	12,499	Moffatt & Sons	11,160
Sapcote & Sons	11,789	J. H. Lovatt	10,988
Wilcock	11,486	F. Kirk	10,949
J. Bowen	11,437	S. R. Lamble	10,891
Harley & Son	11,387	B. Whitehouse, Birmingham (accepted)	10,875
T. Rowbotham	11,340		
W. Hopkins	11,254		

BRISTOL.—For alterations and additions to the boot factory of Messrs. Hutchins & May, Portland-square, Bristol. Mr. W. Holbrow, surveyor, 16, John-street, Bristol:—

Eastabrook & Sons	£780	G. Humphreys	£598
W. Church	698	E. Clark	545
Cowlin & Son	666	H. J. Rossiter	540

BROOKWOOD.—For building a temperance coffee house on the Camp-road, Brookwood Station, for Mr. W. P. Hill. Mr. Robt. Clamp, architect, Woking:—

W. & J. Gay	£695 0 0
A. A. Gale, Woking (accepted)	635 0 0

CAMBRIDGE.—Accepted for vicarage house, for St. Barnabas parish. Mr. Ewan Christian, architect, 8A, Whitehall:—

W. Saint, Cambridge	£1,817 0 0
[Five other tenders.]	

CAMBRIDGE.—Accepted for a pair of semi-detached residences, Lyndewode-road, for the Rev. B. W. Adams. Mr. Fredk. West, architect, Coombe-road, Croydon:—

W. Saint	£1,650 0 0
[No competition.]	

CARDIFF.—For alterations to "Duffryn Arms" public-house, for Messrs. Hancock & Co., Limited. Mr. C. C. Jones, architect, Cardiff:—

S. Shepton & Son	£320 0	Pickford & Sons	£238 10
Knox & Wells	317 0	J. Thomas	220 0
J. Hopkins	300 0	J. Gibson (accepted)	198 0

CARDIFF.—For the erection of Free Library buildings, South Splotlands, for the committee of the Free Library, Cardiff. Messrs. Habershon & Fawckner, architects, Pearl-street, Cardiff. Quantities by the architects:—

E. Jefferies	£1,538 7 9	O. Lewis	£1,075 0 0
T. Evans	1,345 0 0	J. Allan	1,071 0 0
S. Shepton & Son	1,195 0 0	G. Griffiths	1,069 0 0
Thomas & James	1,191 0 0	Best & Co.	1,068 0 6
J. Hopkins	1,188 0 0	Cadwallader & Hockridge	1,050 0 0
Hallett & Son	1,150 0 0	Cox & Bardo	1,050 0 0
J. T. Turner	1,129 12 0	Newly & Co.	1,035 6 1
G. Haywood	1,128 7 4	Powell & Mansfield	1,021 0 0
Rees & Thomas	1,122 8 5½	T. E. Clouter	1,015 0 0
Jones & Co.	1,122 0 0	Robins	1,015 0 0
Jones Brothers	1,120 0 0	H. Davies	1,012 16 1
D. Davies	1,109 0 0	Knight & Harvey	999 0 9
W. Barry Richards	1,090 0 0		

DENBIGH.—For the erection of school buildings, &c., for the School Board. Mr. R. Lloyd Williams, architect, Denbigh. Quantities by architect:—

W. E. Samuel	£2,550 0 0	Isaac Jones	£2,005 10 6
E. Bradshaw	2,246 0 0	John Simon Roberts, Denbigh*	1,943 0 0
Thomas Browne	2,134 0 0		
J. Price Williams	2,075 0 0		

* Provisionally accepted.

EARL'S HEATON (Yorks.).—Accepted for paving, kerbing, flagging, &c., High-road and Town-street, for the Soothill Nether Local Board. Mr. M. Paterson, C.E., 35, Manor-road, Bradford, Yorks.:—

Harrison Barraclough, Brighouse	£1,636 0 0

HASTINGS.—For the erection of class-room, alterations to buildings, &c., for the Hollington School Board. Messrs. Jeffery & Skiller, architects, 5, Havelock-road, Hastings. Quantities by the architects:—

J. Lester	£677 0	S. Geary	£585 16
Chapman & Cuff	624 10	D. Snow	573 0
Hy. Ashdown	610 0	W. Small	544 18
E. Gutsell	594 0	Easton & Cramp	540 0
A. H. White	591 11	J. Elliott, Hollington (accepted)	510 0
Padgham & Hutchinson	588 0		

HURSTPIERPOINT (Sussex).—For rebuilding ironmonger's shop and house, in High-street, Hurstpierpoint, Sussex:—

Pearsey	£840	Godley (accepted)	£800
Cripps	820	[All of Hurst.]	

LANCASTER.—Accepted for the erection of additional block and wing at the asylum, for the Committee of Lancashire Asylums Board. Mr. E. Howard Dawson, architect, 41, Market-street, Lancaster. Quantities by architect:—

New Nurses' Block.

W. Harrison, Builder, Lancaster	£5,157 18 0
W. Huntington, C. & J., ,,	
W. E. Hartley, S. & P., ,,	
Jos. Kay, P. & G., ,,	
G. Blyard, Painter, ,,	

New Women's Hospital Wing.

W. Harrison, Builder, Lancaster	£3,367 6 3
W. Huntington, C. & J., ,,	
R. Hall, S. & P., ,,	
G. Blyard, P., G., & P. ,,	

LLANDILO.—For the erection of school buildings, Cefneithyn, for the Llandebie U.D. School Board. Mr. David Jenkins, architect, Llandilo:—

Evans & John (too late)	£1,235	Walters, Mainwaring, & Powell, Cross Hands, Llanelly (accepted)	£1,200
E. W. Deakins	1,225		

LONDON.—For the erection of chimney shaft (contract No. 1) King's-road Electricity Station, for the St. Pancras Vestry. Mr. Wm. Nisbet Blair, Borough Engineer, Vestry Hall, St. Pancras, London, N.W. Quantities by Mr. W. T. Farthing, 46, Strand:—

Burman & Son	£5,718 0	Smart	£4,094 0
Jerrard	4,800 0	J. E. Johnson & Son	3,860 0
Spencer & Co.	4,676 0	J. Stead	3,854 0
H. Wall & Co.	4,650 0	Kellett & Co.	3,557 1
Godson and Son	4,567 0	Kelly Bros.	3,437 5
C. Wall	4,450 0	W. Neil, Turner-road, Burdett-road*	3,332 0
Mowlem & Co.	4,421 0	J. Yates & Co. †	3,100 0
Holden & Myles	4,168 0		

*Accepted. † Withdrawn.

LONDON.—For alterations to 227, Strand, W.C., for Mr. R. Baker. Messrs. Saville & Martin, architects, Dacre House, Arundel-street, Strand, W.C. Quantities supplied:—

Ward & Lamble	£1,631	Young & Lonsdale	£1,514
Peacock Brothers	1,548	Allen & Sons	1,485
Puzey & Lumley	1,525	E. Toms	1,479

LONDON.—For alterations to 158, Regent-street, W., for the London Catering Company. Messrs. Saville & Martin, architects, Dacre House, Arundel-street, Strand, W.C.:—

Antill & Co.	£1,136	Hilder & Edge	£900
Spencer & Co.	935	Drew & Cadman*	875

* Accepted.

LONDON.—For reconstruction of party structure, 99 & 100, Fleet-street, E.C., for Mr. R. Baker. Messrs. Saville & Martin, architects, Dacre House, Arundel-street, Strand, W.C.:—

Ward & Lamble	£759	Allen & Sons	£568

LONDON.—For gasfittings, &c. (tenders to be with designs), at the "Elgin Arms," Ladbroke-grove-road, for Mr. W. G. Dickenson. Messrs. Bird & Walters, architects, 64, Seymour-place, W.:—

Winn	£337	Buckley & Beach	£283
Biggs (accepted)	309		

LONDON.—For new road and sewers, Raleigh House Estate, Brixton:—

G. Porter	£978 0 0	W. Landridge	£718 0 0
Fry Bros.	949 0 0	W. H. Wheeler	715 6 8
John Neave	921 3 6	H. Loader	699 16 8
J. S. Davis & Son	880 0 0	T. Adams	699 9 0
J. Hoare & Son	880 0 0	Peill & Son	697 0 0
M. W. H. Jennings	865 17 4	Lagdon & Crawford	601 0 0
Cattell	830 0 0	Mayo & Co., Peckford place Works, Brixton-road, S.W.*	595 0 0
S. Hudson	825 0 0		
Porter, Harrison & Co.	779 0 0	W. Pavey	435 0 0
G. Wimpey & Co.	745 0 0		
A. Kellett	721 0 0		

*Accepted

Too late.

Brown Bros.	£940 0 0	R. Ballard	£780 16 6

LONDON.—For the extension of quarters at the workhouse, Plumstead, for the Woolwich Union Guardians. Mr. J. O. Cook, architect, Guardians' Offices, Woolwich. Quantities by Mr. C. W. Brooks, 63, Finsbury-pavement, E.C.:—

London Amalgamated Builders	£1,902 5 6	Woolwich and District Co-operative Builders	£1,500 16 0
F. H. Higgs	1,760 0 0	E. Proctor	1,490 0 0
The Co-operative Builders	1,600 0 0	Garlick & Holton	1,448 0 0
Wall & Co.	1,539 0 0	W. Lawrence	1,410 0 0
Yerbury & Sons	1,520 0 0	J. O. Richardson	1,369 0 0
G. Grey	1,503 0 0	W. Pavey, Winchmore Hill*	1,310 0 0

* Accepted.

MOUNTAIN ASH (Glam.).—For sewering, paving, &c., Crawshay-street, Ynysbwl, for the Local Board:—

Evan Davies	£381 12 8
Edward Williams, Cribbyn-ddw, Ynysbwl*	337 8 8

* Accepted.

NEATH (Wales).—For the construction of road, erection of bridges, &c., from Crynant to Seven Sisters, for the District Highway Board. Mr. D. M. Davies, Surveyor, 58, Water-street, Neath:—

D. Jenkins	£3,460 0 0	Elliott & Pauling, Westminster*	£2,850 0 0
Crwys & Hoborough	3,459 12 3		
Strachan	3,093 0 0		

* Accepted.

ST. HELEN'S (Isle of Wight).—Accepted for the erection of a block of stabling (turret clock for stabling not included), water-basins and temple, and 600 ft. terrace, &c., at Woodlands Vale, near Ryde, for General the Hon. Somerset J. G. Calthorpe, J.P., D.L., from the designs of Messrs. R. C. Davy & Stephen Salter, jun., of Maidenhead and Isle of Wight:—

Isaac Barton, Ryde	£3,911 0 0

SALE.—For paving, flagging, &c., Seymour-grove, for the Local Board. Mr. A. G. McBeath, C.E., Surveyor, 4, School-road, Sale:—

George Boyson	£375 0 0	Peter Smith, Hope-road, Sale*	£268 16 2
Wm. Barton	300 0 0		
Matthew Naylor & Son	298 0 0		

* Accepted.

SCARBOROUGH.—Accepted for the erection of new buildings, and alterations at the Scarborough Union Workhouse, for the Guardians of the Poor. Mr. John Petch, architect, Bar-street, Scarborough:—

Brickwork, &c.—Petch & Fox	£408 0 0
Joiner's Work.—Thos. Myers	235 18 6
Slating.—Joseph Hardgrave	77 0 0
Heating, &c.—Septs. Bland	91 8 6
Plumbing.—F. T. Percy	75 19 6
Painting.—J. H. Eastwood	9 13 0
[All of Scarborough.]	£987 19 6

SEVENOAKS.—Accepted on basis of schedule of prices for levelling, metalling, sewering, &c., Argyle and Beech roads, for the Local Board. Mr. Jabez Mann, C.E., Surveyor, Local Board Offices, Argyle-road, Sevenoaks:—
Sidney Hudson, Streatham.

STROUD.—For additions and alterations to the workhouse, for the Union Guardians. Mr. W. H. C. Fisher, architect, 6, Rowcroft, Stroud:—

A. S. Cooke	£395 0 0	C. Hook	£338 14 0
N. Baxter	385 0 0	J. Lewis & Sons	325 0 0
F. Dudbridge	384 10 0	H. Alderwick	320 0 0
E. Beavis	382 0 0	Wall & Hook	307 0 0
H. Beavis	350 0 0	English & Sons, Stroud (accepted)	305 10 0
J. Poulton	344 9 0		

SURBITON.—For the construction of sewer, &c., at outfall, Kingston-on-Thames, for the Improvement Commission. Mr. Samuel Mather, C.E., Victoria-road, Surbiton:—

S. Kavanagh	£210 0 0
S. Atkins, Kingston-on-Thames (accepted)	186 7 6

THORPE (Norfolk).—For the erection of three pairs of cottages at the county asylum, Thorpe, for the Norfolk County Council. Mr. T. H. B. Heslop, C.E., County Surveyor, Norwich. Quantities by Surveyor:—

H. Lacey	£1,760 0 0	T. H. Blyth	1,375 17 6
R. Mayes	1,598 7 7	Brown & Co.	1,258 12 0
W. Evans	1,522 0 0	Hunt & Son	1,170 0 0
F. J. Hipperson	1,511 14 6	R. W. Riches, Postwick, Norwich*	1229 0 0
J. Smith	1,440 0 0		
Norwich Industrial Builders' Society	1,396 10 0		

*Accepted.

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*5. Wells	13. St. Paul's	21. Bangor and	28. Chester
*6. Exeter	14. Hereford	22. St. Asaph	29. Manchester
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HAM HILL STONE,
The attention of Architects is specially invited to the durability and beautiful COLOUR of this material. Quarries well opened. Quick despatch guaranteed. Stonework delivered and fixed complete. Samples and estimates free. Address, The Ham Hill Stone Co., Norton, Stoke-under-Ham, Somerset. London Agent: Mr. E. A. Williams, 16, Craven-st., Strand, W.C. [ADVT.

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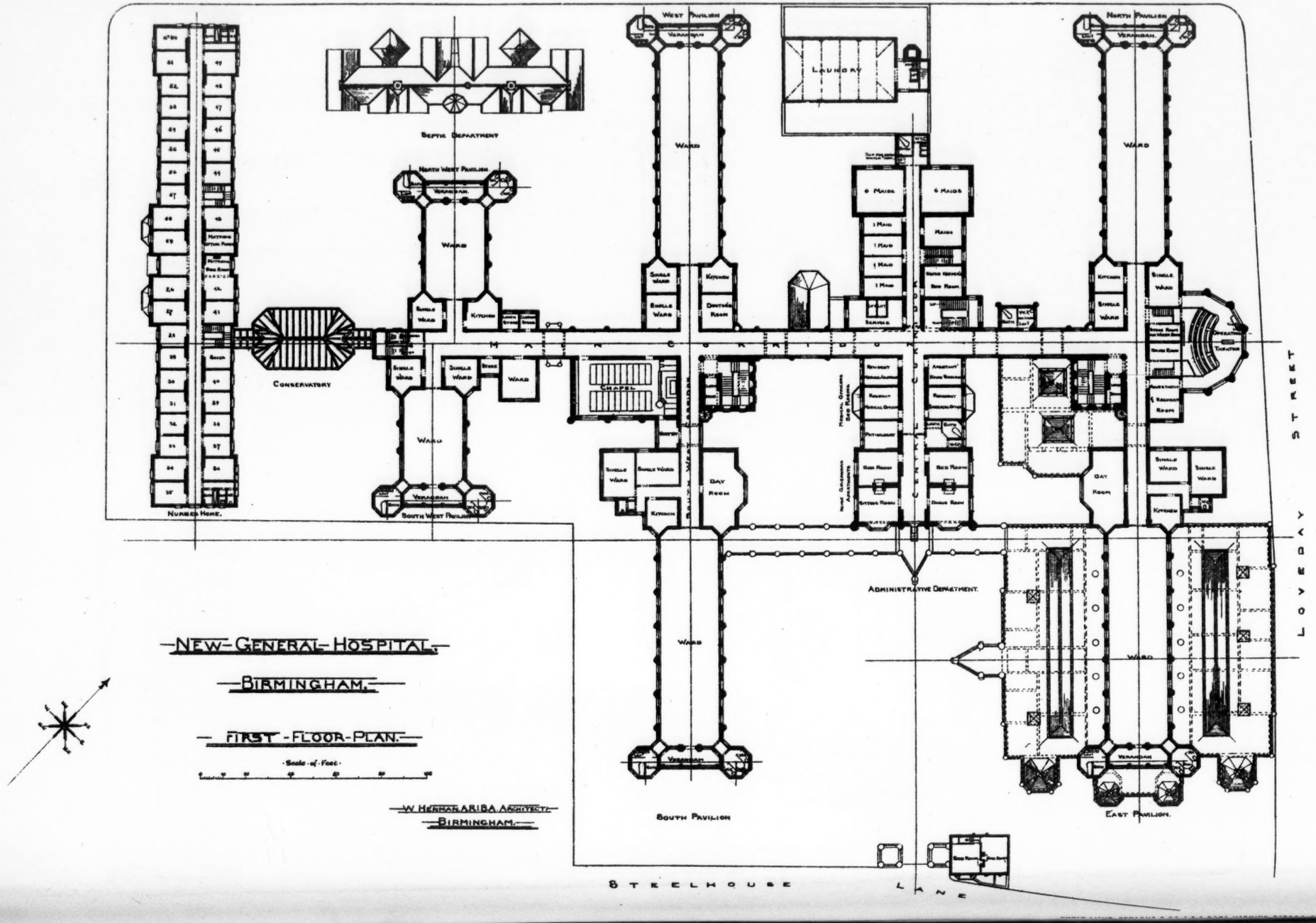
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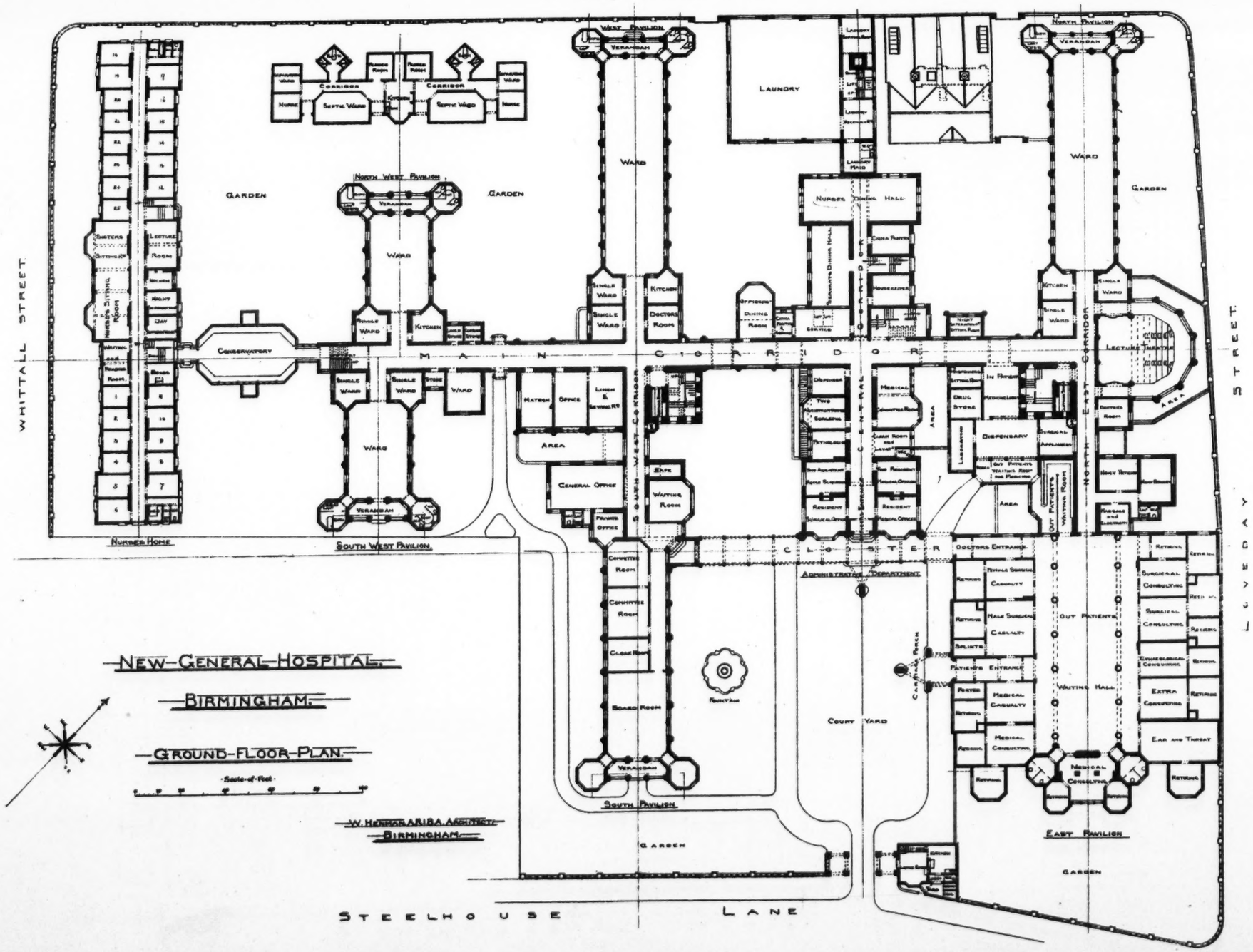

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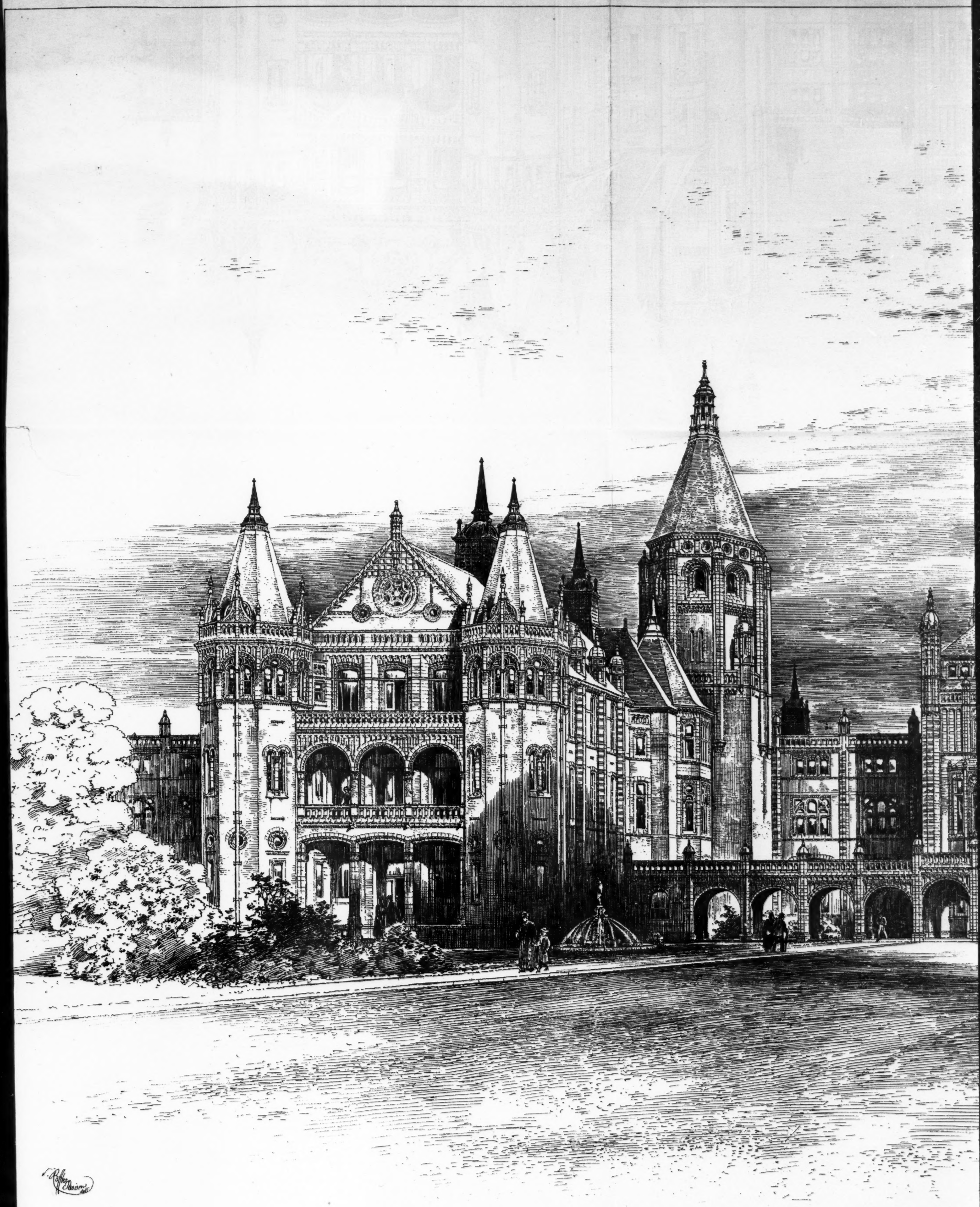


Royal Academy Exhibition, 1893.

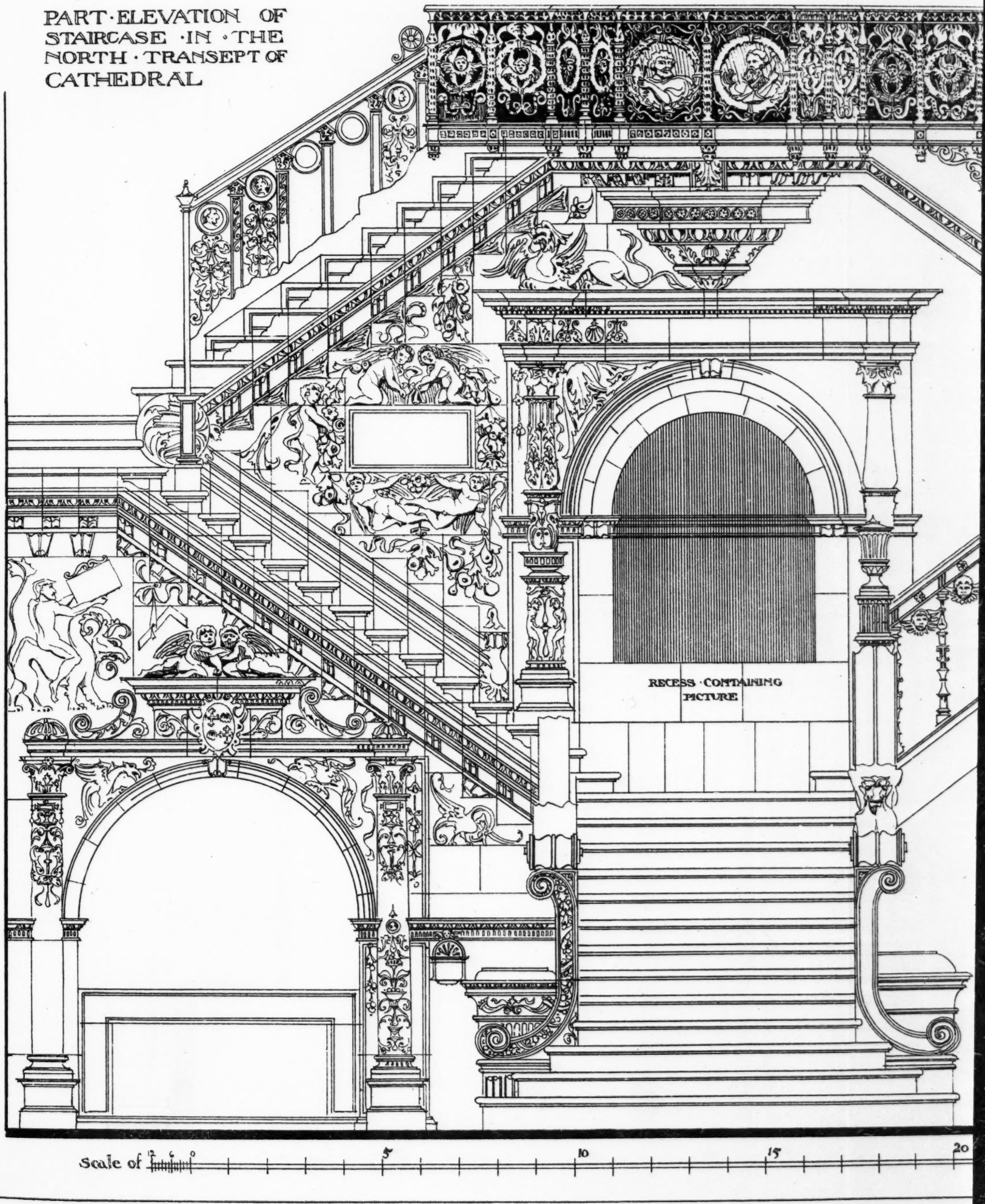
The New General Hospital Birmingham

Wm Henman a.r.i.b.a. Architect

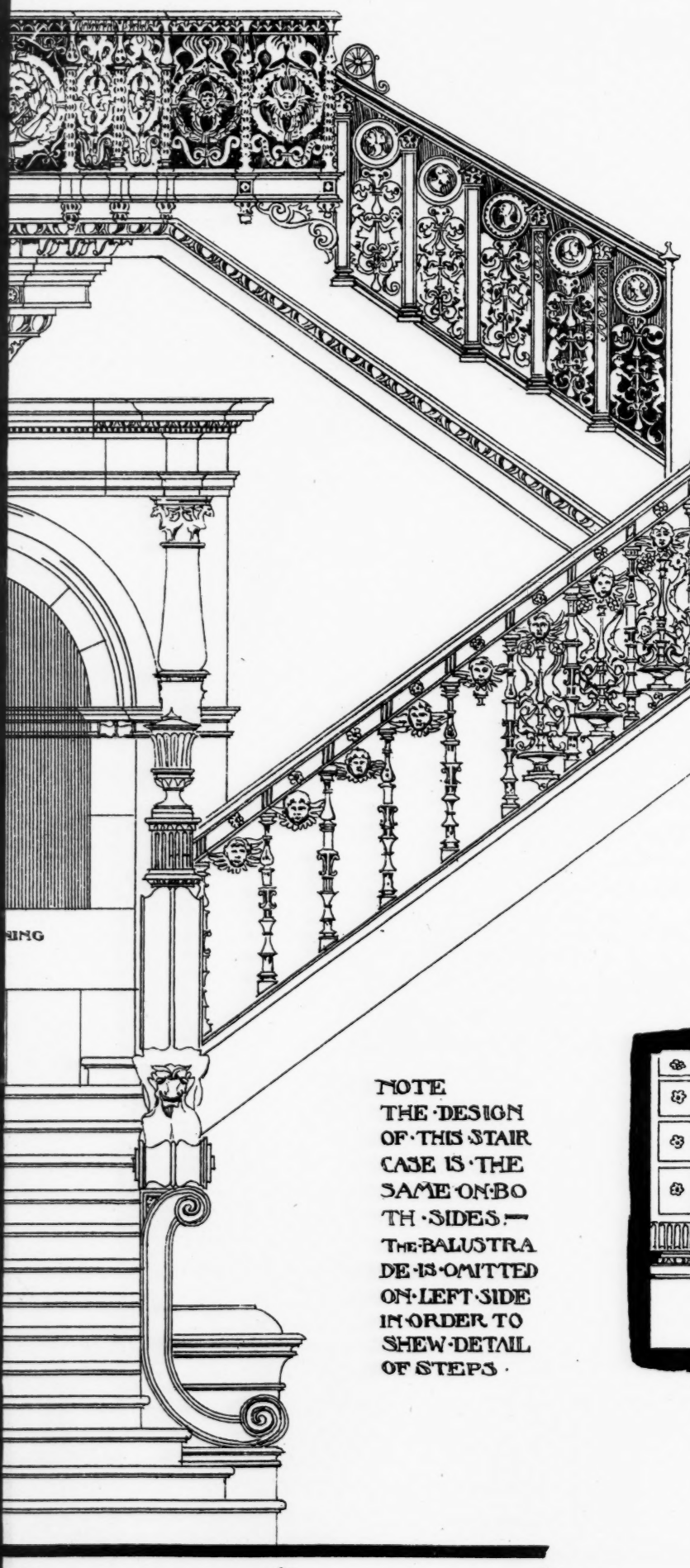
PHOTO-LITHO. SPRAGUE & Co 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

BURGOS

PART · ELEVATION OF STAIRCASE · IN · THE NORTH · TRANSEPT OF CATHEDRAL

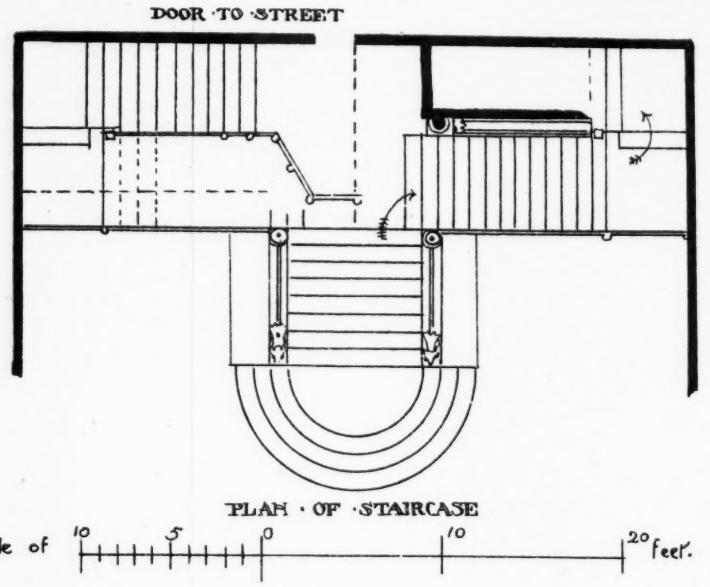


Measured and Drawn by Mr. A. N. Prentice, A.R.I.B.A.



NOTE
THE DESIGN OF THIS STAIR CASE IS THE SAME ON BO TH SIDES:— THE BALUSTRA DE IS OMITTED ON LEFT SIDE IN ORDER TO SHEW DETAIL OF STEPS.

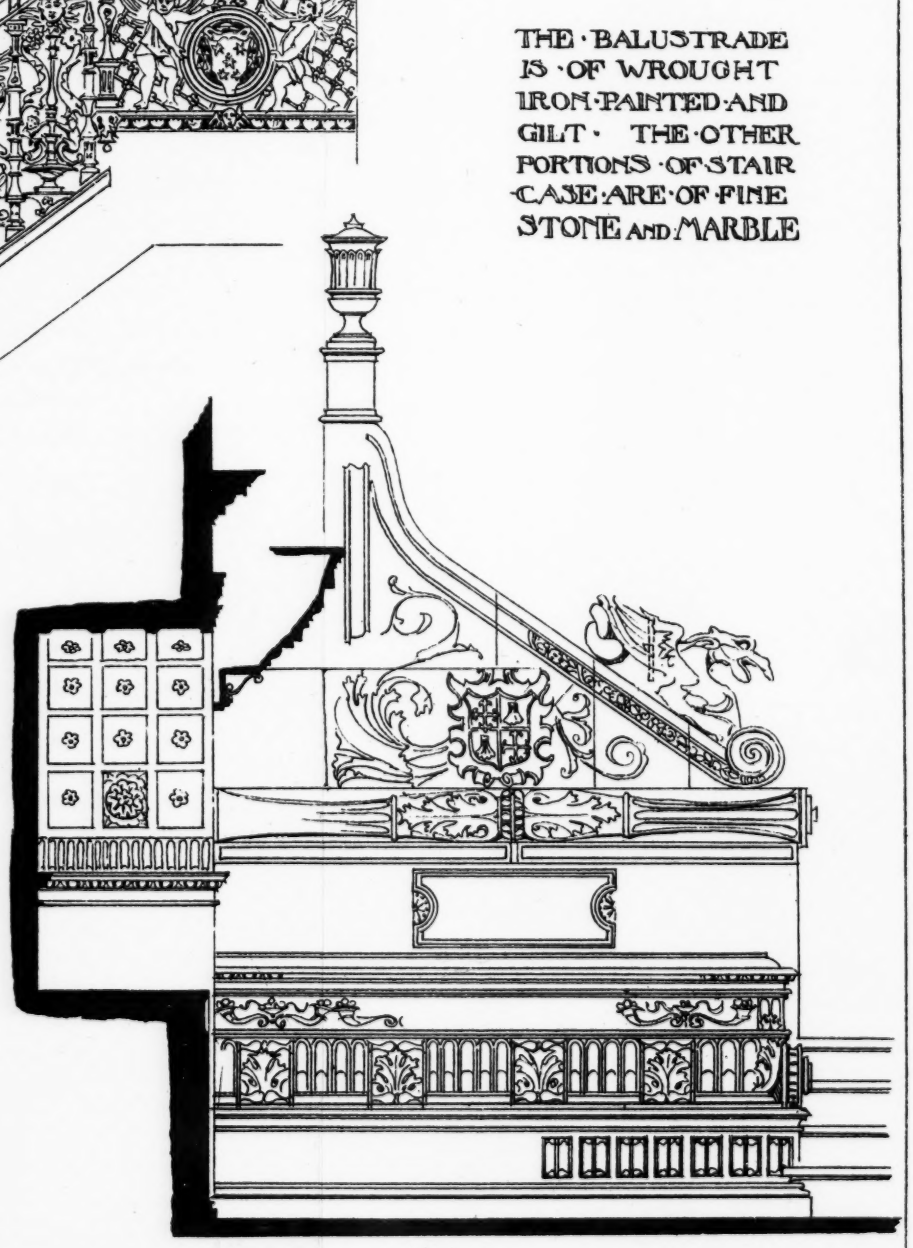
15 20 25 feet.



PLAN OF STAIRCASE

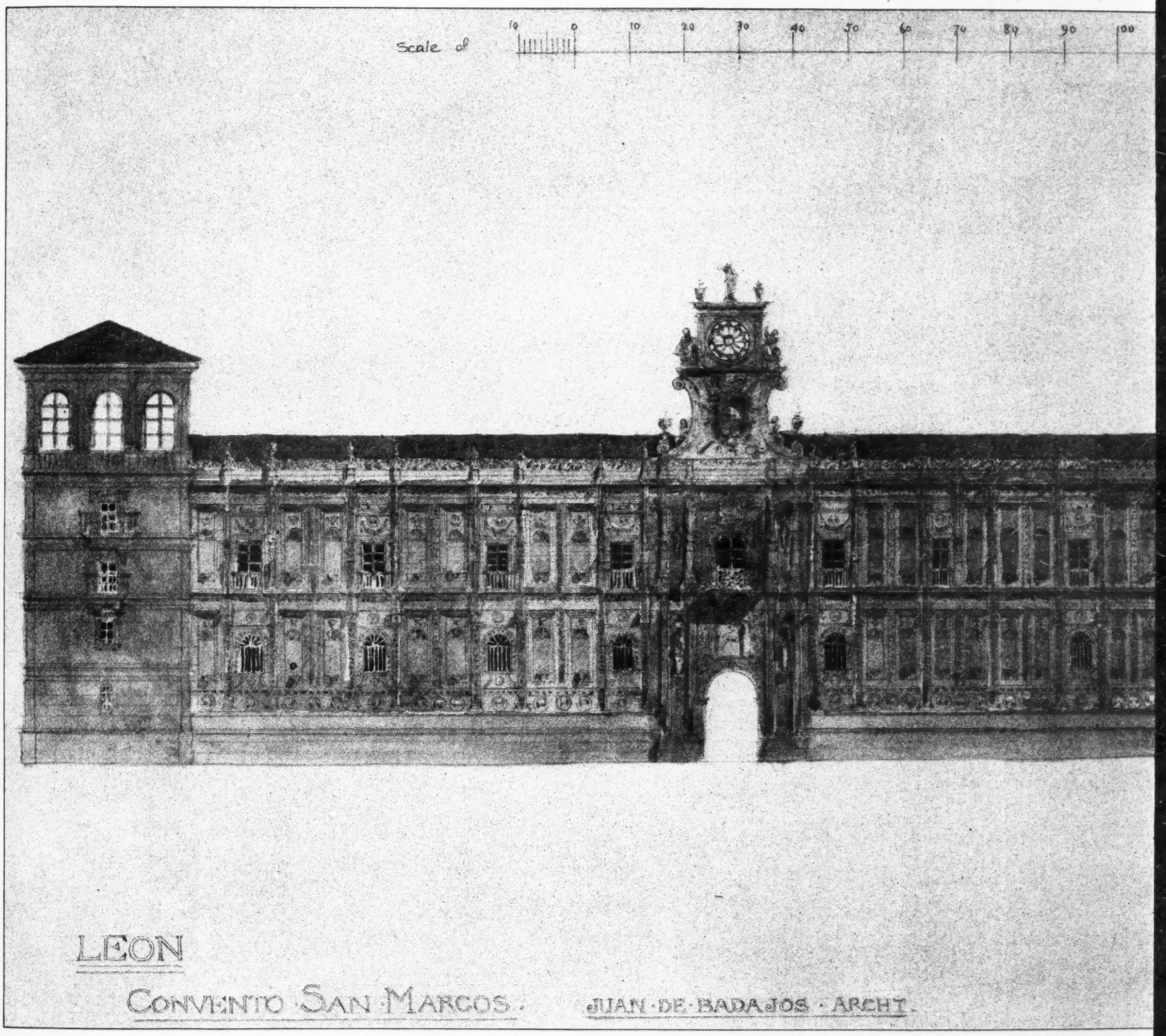
Scale of 10 5 0 10 20 feet.

THE BALUSTRADE IS OF WROUGHT IRON PAINTED AND GILT. THE OTHER PORTIONS OF STAIR CASE ARE OF FINE STONE AND MARBLE



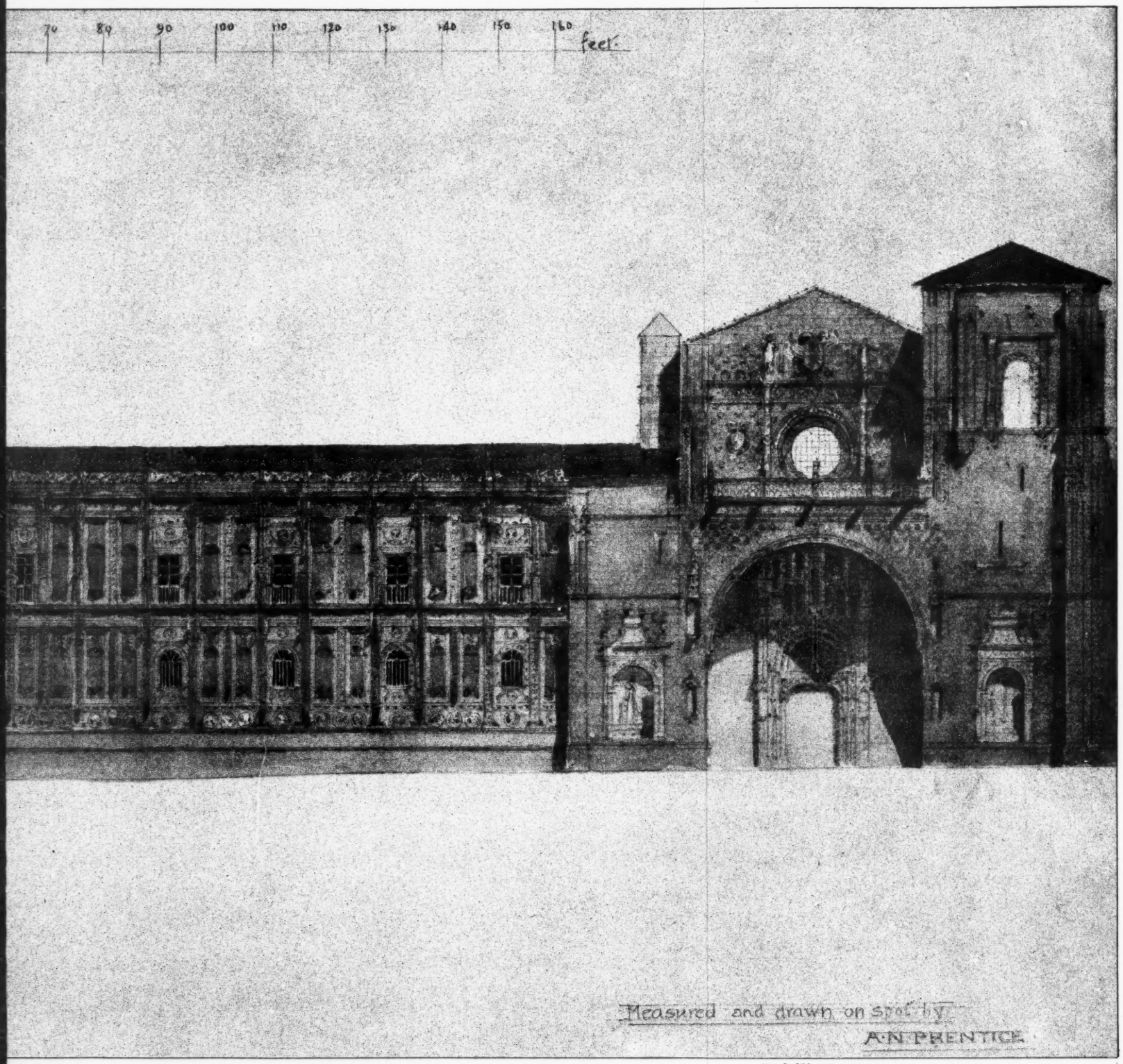
SIDE ELEVATION AND SECTION

PHOTO-LITHO SPRAGUE & Co 4 & 5 EAST HARDING STREET FETTER LANE, E.C.



FAÇADE OF CONVENT OF ST. MARCOS, LEON, SPAIN.—From a Drawin

Royal Academy Exhibition, 1892.



INK-PHOTO SPRAGUE & Co 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

LEON, SPAIN.—From a Drawing by Mr. A. N. Prentice, A.R.I.B.A.